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BIBLIOGRAPHY

TRANSLATIONS SERVICE ACCESSIONS. 5 May 59
[74]p. TG 230-T80.
Order from OTS $2.00 59-21110

TRANSLATIONS SERVICE ACCESSIONS. 11 May 59
[58]p. TG 230-T100.
Order from OTS $1.50 59-21111

Library of Congress, Washington, D. C.
EAST EUROPEAN ACCESSIONS INDEX. Aug 59, 275p.
Order from GPO $10.00/year

Designed to serve the English-speaking user, this index lists post World War II publications received by the Library of Congress and over 100 major American research libraries from Albania, Bulgaria, Czechoslovakia, Estonia, Hungary, Latvia, Lithuania, Poland, Rumania, and Yugoslavia in all fields of knowledge. Arrangement in the first part is by country and within each country by 17 subject classes. In addition to the entry in the original language, a translation of the title or a descriptive annotation in English is given for each monograph and periodical, with the tables of contents translated into English for selected periodicals. The second part, comprising approximately two-thirds of the Index, consists of a subject index to all articles appearing in periodicals for which the tables of contents are translated and to all monographs listed.

Sheynis, I. M.
ON THE REFERENCE JOURNAL. 5 Aug 59, 2p.
JPRS: L-1007-D.
Order from OTS $0.50 59-11629

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 56-57.

The existing system of cross indexing within and among series makes it possible to fill in gaps in one journal by referring to another. Furthermore, subject and author indexes published yearly in the form of addeuda to the various series make it possible to select the literature in the field or on the work of a given author with a minimum waste of time.

AGRICULTURE

NEW CONQUESTS OF SOVIET BIOLOGICAL SCIENCE. 15 June 59, 20p. 3 refs. JPRS: L-821-N.
Order from OTS $0.75 59-13625

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1959, no. 2, p. 161-171.

Reference is made to projected work by various research institutes in the USSR on soil and vegetation mapping, selection and breeding of fish, grass hybridization, egg and milk production, etc.

SOVIET AGRICULTURE: SELECTED TRANSLATIONS. 17 July 59, 73p. 2 refs. JPRS: 811-D.
Order from OTS $2.00 59-11707

Trans. of selected articles from Russian literature.

Contents:
Development of socialist agriculture during the next seven years, by P. Doroshenko
Monetary form of payment for labor on the Ukrainian collective farms, by I. Romanenko and N. Nizhniy
New form of labor payment and income distribution on collective farms, by K. Okhapkin
New order of labor payment for the workers of the RTS [Repair Tractor Stations], by K. Rubleva
Mounted machines on various tractors, by N. Zvolinskiy
To combine the increase of milk production with the increase of butter fat content, by V. I. Skibin
To further strengthen the fodder base, by K. K. Brentsis
Fodder mixtures for different age groups of hogs, by G. M. Mozgov and Ya. G. Chugunkov

Stolyarov, M. V.
EXPERIMENTAL CONTROL OF INJURIOUS GRASSHOPPERS WITH AEROSOLS. 22 Apr 59, 4p. 6 refs. JPRS: L-749-N.
Order from OTS $0.50 59-13443

Trans. of Zoologicheskiy Zhurnal (USSR) 1958, v. 37, no. 8, p. 1252-1253.

Vol'fkovich, S. I.
UTILIZING CHEMICALS MORE EXTENSIVELY IN AGRICULTURE (Shire Ispol'zovat' Khimiye v Sel'skom Khozyaystve). [1959] 10p. (1 illus. omitted). Trans. A-1030.
Order from LC or SLA mi$1.80, ph$1.80 59-16824

Trans. of Priroda (USSR) 1959, v. 48, no. 2, p. 7-11.

Wind, G. P.
DIFFERENCES BETWEEN THE WATER RELATIONS OF GRASSLAND AND ARABLE LAND (Verschillen in Waterhuishouding Tussen Grasland en Bouwland). [1959] [10]p. (1 table omitted) 8 refs. Trans. no. 3375.
Order from SLA mi$2.40, ph$3.30 59-15086

Trans. of mono(?) Centraal Instituut voor Landbouwkundig Onderzoek, Wageningen, Verslag, 1954, p. 126-132.

Grassland has a higher evapotranspiration than arable crops. But this is not the reason why grassland is more sensitive to drought than arable crops, for leys have a still higher evapotranspiration and they are more resistant to drought than old grassland. The sensibility to drought of grassland is probably due to the manner in which it extracts the soil moisture. It appears that old grass cannot extract as much water from the subsoil as arable crops and young grass can.

Animal Husbandry

ABOUT VACCINATION OF MATURE CATTLE AGAINST BRUCELLOSIS. MATERIAL SUBMITTED TO THE EDITOR'S OFFICE (O Vaktsinatsiy Protiv Brutselleza Vzroslogo Krupnogo Skota Po Materyalam Postupivshim v Redaktsiyu). 5 Mar 59, 23p. Trans. V1380.
Order from LC or SLA mi$2.70, ph$4.80 59-14665

Trans. of Veterinariya (USSR) 1958, v. 35, no. 10, p. 31-38.

IN THE USSR MINISTRY OF AGRICULTURE (V Ministerstve Sel'skogo Khozyaystva SSSR). 27 Jan 59, 3p. Trans. V1374.
Order from LC or SLA mi$1.80, ph$1.80 59-14228

Trans. of Veterinariya (USSR) 1958, v. 35, no. 12, p. 77ff.

The contents of the official instruction for disinfection of raw materials of animal origin are summarized. The All-Union State Factory "Agroposobie" has ready for distribution to the satellite republics a large assortment of moulages and educational manuals on normal anatomy of animals and birds, on obstetrics, and on the diseases of domestic animals. The Agroposobie factory in Moscow distributes an itemized catalogue of these moulages and manuals.

IN THE USSR MINISTRY OF AGRICULTURE (V Ministerstve Sel'skogo Khozyaystvy SSSR). 24 Mar 59, 4p. Trans. V1404.
Order from LC or SLA mi$1.80, ph$1.80 59-14674

Trans. of Veterinariya (USSR) 1959, v. 36, no. 2, p. 92-93.

Topics include: Biological preparation of vitamin B_{12}; The biomycin preparation "biovit-40"; Control of cobalt deficiency.

THROUGH THE SOVIET UNION (Po Sovetskomu Soyuzu). 19 Feb 59, 9p. Trans. V1381.
Order from LC or SLA mi$1.80, ph$1.80 59-14232

Trans. of Veterinariya (USSR) 1958, v. 35, no. 12, p. 81-83.

The work of various veterinarians' conferences is reported. The visit of an American veterinary delegation to the USSR in July-August 1958 is described.

THROUGH THE SOVIET UNION (Po Sovetskomu Soyuzu). 24 Mar 59, 4p. Trans. V1406.
Order from LC or SLA mi$1.80, ph$1.80 59-14675

Trans. of Veterinariya (USSR) 1959, v. 36, no. 2, p. 93ff.

The work of the Conference of Foremost Swine Breeders, of the Conference of Veterinary and Technical Specialists, and of the Conference of Veterinary Specialists is reported.

Bityukov, P. A.
EXPERIMENTS IN TRANSMISSION OF THEILERIASIS AND ANAPLASMOSIS OF SHEEP THROUGH TICKS ORNITHODOROS LAHORENSIS AND HAEMAPHYSALIS SULCATA. [1959] [7]p. Trans. 3 (T3).
Order from LC or SLA mi$1.80, ph$1.80 59-15840

Trans. of Akad[emiya] Nauk Kazakhskoy SSR, [Alma-Ata]. Ins[titut] Zool[ogii]. Trud[y] 1953, v. 1, p. 30-36.

Dubovyi, S. Z. and Markov, A. A.
EPIZOOTIOLOGY AND PROPHYLAXIS OF BOVINE THEILERIASIS ON THE APSHERON PENINSULA (Epizootologiya i profilaktika Teileryoza Krupnego Rogatogo Skota na Apsheronskom Poluostrove). [1959] 13p. 7 refs. Trans. V1396.
Order from LC or SLA mi$2.40, ph$3.30 59-14673

Trans. of Veterinariya (USSR) 1958, v. 35, no. 8, p. 30-35.

Glukhova, G. S.
TISSUE PREPARATIONS IN ANIMAL HUSBANDRY (Tkanevye Preparaty v Zhivotnovedstve). 22 Jan 59, 3p. Trans. V1370.
Order from LC or SLA mi$1.80, ph$1.80 59-14224

Trans. of Veterinariya (USSR) 1958, v. 35, no. 7, p. 82-83.

Filatov tissue transplant preparations have been used successfully in treatment of wounds, ulcers and burns in various domestic animals, and especially in treatment of dermatosis of extremities of horses. Swine to be fattened were experimentally treated with a spleen preparation and showed a weight gain of 437 g in 1 month, as compared to 300 g in the control group. Good results are also reported in those cases in which the preparation was injected into undernourished piglets.

Ivanova, V. I.
APPLICATION OF ANTIBRUCELLAR VACCINES (Primeneniye Vaktsin Protiv Brutselleza). 16 Mar 59, 7p. Trans. V1394.
Order from LC or SLA mi$1.80, ph$1.80 59-14671

Trans. of Veterinariya (USSR) 1959, v. 36, no. 1, p. 30-32.

Lukashov, I. I. and Nikitina, V. S.
PROPHYLACTIC AND THERAPEUTIC ACTION OF GAMMA-GLOBULINS IN THE AUJESZKY'S DISEASE (Profilakticheskiye i Lechebnye Deystviya Gamma-globulinov Pri Bolezni Auyeski) 6 Mar 59, 7p. Trans. V1383.
Order from LC or SLA mi$1.80, ph$1.80 59-14666

Trans. of Veterinariya (USSR) 1958, v. 35, no. 9, p. 48-50.

Solomina, V. F.
MORPHOLOGICAL CHARACTERISTICS OF THE VACCINAL PROCESS IN BRUCELLOSIS (EXPERIMENTAL STUDY). 30 Mar 59, 9p. 5 refs. JPRS L-1580-D.
Order from OTS $0.50 59-11476

Trans. of Arkhiv Patologii (USSR) 1958, v. 20, no. 3, p. 30-35.

Plant Cultivation

AT THE SESSION OF VASKHNIL ON PROBLEMS OF VEGETABLE GROWING, POTATO GROWING, CULTIVATION OF ORCHARDS AND VINICULTURE. [1959] 11p. 1 ref. Trans. A-1015.
Order from LC or SLA mi$2.40, ph$3.30 59-16810

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 1, p. 56-58.

COURSES FOR SEED GROWER-AGRONOMISTS. [1959] 2p. (2 figs. omitted). Trans. A-1000.
Order from LC or SLA mi$1.80, ph$1.80 59-16799

Trans. of Kukuruza (USSR) 1957, v. 2, no. 6, p. 50.

The training here described centers on the development of hybrid corn.

Avdonin, N. S.
INCREASING SOIL FERTILITY - AN IMPORTANT TASK OF SOCIALISTIC AGRICULTURE (Povysheniye Plodorodiya Pochvy-vazhneishaya Zadacha Sotsyalisticheskogo Zemledeliya). [1959] 18p. 5 refs. Trans. A-1017.
Order from LC or SLA mi$2.40, ph$3.30 59-16812

Trans. of Vestnik Sel'skokhozyaystvennoy Nauki (USSR) 1959, v. 4, no. 1, p. 62-70.

Fedotova, T. I.
NEWS IN A RESEARCH ON PHYTOPHTHORA IN POTATIOES (Novoye v Rabotakh po Fitoftore Kartofelya). [1959] 5p. 1 ref. Trans. A-1037.
Order from LC or SLA mi$1.80, ph$1.80 59-16828

Trans. of Vest[nik] Sel'skokhoz[yaystvennoy] Nauki (USSR) 1959, v. 4, no. 2, p. 129-130.

The collection and study of Phytophthora-resistant potato hybrids is described. A method using sterilized sunflower seed oil over Phytophthora cultures on artificial media in flasks or test tubes is described. This method permits preservation of the cultures for a long time without replating and without the loss of virulence attributed to replating. Phytophthora is fully capable of developing without access to oxygen from the outside. Cultures of Fusarium (causative agent of rice wilt) can also be preserved for long periods under oil with retention of high activity.

Marakhtanov, K. P., Gorbachev, V. G. and Filatkin, P. A.
THE GROWING OF 100 HECTARES OF CORN BY ONE MAN (Za Vozdelyvaniye Odnim Chelovekom sta Gektarov Kukuruzy). [1959] 13p. (5 figs. omitted). Trans. A-1004.
Order from LC or SLA mi$2.40, ph$3.30 59-16801

Trans. of Kukuruza (USSR) 1957, v. 2, no. 6, p. 15-20.

Musiyiko, A. S. and Klyuchko, P. F.
BREEDING AND SEED GROWING WORK WITH CORN (Selektsyonno - semenovodcheskaya Rabota s Kukuruzoy). [1959] 11p. (1 fig. omitted). Trans. A-1006.
Order from LC or SLA mi$2.40, ph$3.30 59-16803

Trans. of Kukuruza (USSR) 1957, v. 2, no. 12, p. 32-36.

Nekrasov, V. I.
CONFERENCE ON PROBLEMS OF FOREST SELECTION (Soveshchaniye po Voprosam Lesnoy Selektsii). [1959] [14]p. Trans. A-1027.
Order from LC or SLA mi$2.40, ph$3.30 59-16821

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958, v. 23, no. 5, p. 628-631.

Rabinovich, M. B.
CRITICAL VELOCITY OF STRAW IN A VERTICAL AIR CURRENT (Kriticheskaya Skorost' Solomy v Vertical'nom Vozdushnom Potoke). [1959] [15]p. (10 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-17115

Trans. of Sel'khozmashina (USSR) 1952, no. 10, p. 10-13.

The present theoretical and experimental investigation indicated that in a vertical air stream, the critical velocity of straw is determined, all other conditions being equal, by the straw's outer diameter when the length is 10 to 100 mm, and by the straw's length when the length exceeds 100 mm. The presence of nodes on the straw's surface raises the critical velocity, the highest effect being observed when the node is located at the lower end of the straw with respect to the direction of the air current. The critical velocity increases with the degree of dampness of straw. In bent straws, critical velocity is higher than in rectilinear ones. The critical velocity is independent of the variety and species of the plant examined. Wheat straw has the maximum critical velocity. In the processes of sorting and conveying straw materials by means of air currents, the actual air velocity in the air ducts exceeds the critical velocity of the material.

ASTRONOMY

Astrophysics

AN OUTSTANDING CONTRIBUTION OF THE SOVIET SCIENTISTS TO COSMIC RESEARCH (Vydayushchiysya Vklad Sovetskikh Uchenykh v Issledovaniye Kosmosa). 9 Apr 59 [4]p. AF 1255688.
Order from LC or SLA mi$1.80, ph$1.80 59-16406

Trans. from Pravda [Moscow] (USSR) 1959, 29 Mar, p. 3.

This article presents a brief summary of the closing session of the General Assembly of the Academy of Sciences, USSR, on 28 March 1959, at which a summary report on space research was delivered by the President of the Academy, A. N. Nesmeyanov.

THE SUMMIT OF SCIENTIFIC TECHNICAL THOUGHT (Vershina Nauchno-tekhnicheskoy Mysli). 22 Jan 59 [3]p. AF-1 255 468.
Order from LC or SLA mi$1.80, ph$1.80 59-12712

Trans. from Pravda, Moscow (USSR) 1959, 7 Jan. p. 4.

(A press conference at the USSR Academy of Sciences)

Fesenkov, V. G.
SOVIET IGY STUDIES ON ZODIACAL LIGHT. 5 Mar 59, 27p. 11 refs. JPRS: 1312-N.
Order from OTS $0.75 59-13258

Contents:
A. The Nature of Zodiacal Light, trans. of Akademiya Nauk Kazakhskoy SSR, Alma-Ata. Vestnik, 1958 [v. 14] no. 8, p. 3-9
B. Reduction of Observations of Zodiacal Light, trans. of Astronomicheskiy Zhurnal (USSR) 1958, v. 35, no. 3, p. 323-326
C. Zodiacal Light as a Product of the Disintegration of Asteroids, trans. of Astronomicheskiy Zhurnal (USSR) 1958, v. 35, no. 3, p. 327-334.

Ginburg', V. L., and Fradkin, M. I.
THE ORIGIN OF COSMIC RAYS. 25 June 59, 17p. (3 figs. omitted) 3 refs. JPRS: 775-D.
Order from OTS $0.50 59-11667

Trans. of Priroda (USSR) 1958 [v. 47] no. 8, p. 3-12.

After a descriptive survey of present knowledge of cosmic rays the hypothesis is presented that their generation is the result of the flare of supernova and nova.

Kuz'min, A. D. and Udal'tsov, V. A.
INVESTIGATION OF THE POLARIZATION OF 10-CM RADIO EMISSION OF THE CRAB NEBULA (Issledovaniye Polarizatsii Radioizlucheniya Krabovidnoy Tumannosti v 10-cm Diapazone Voln) tr. by A. Pingell. 18 June 59 [14]p. 18 refs. NRL Trans. no. 739.
Order from OTS $0.50 59-21089

Trans. of *Astronomicheskiy Zhurnal (USSR) 1959, v. 36, no. 1, p. 33-40.

The polarization of the radio emission of the Crab nebula at 9.6 cm was measured with the 31-m radiotelescope (Radiotekh. i Elektron. 2: 1548, 1957) by means of a polarizing radiometer. The sensitivity of the radiometer was equal to 0.6° to 0.9°K for a bandwidth of 10 mc (with an image channel) and a time constant of 20 sec. The antenna temperature of one component of nonpolarized emission was equal to $T_a = 100°$. Several instrumental factors caused by parasitic polarization effects were considered and accounted for. Linear polarization of radio emission of the Crab nebula was detected. The degree of polarization is $3 \pm 0.5\%$. The position angle $\varphi = 142° \pm 5°$, and coincides with the direction of the greatest extension of the Crab nebula. The depolarization effects of the interstellar medium of the Crab nebula are estimated.

Poloskov, S. M. and Nazarova, T. N.
INVESTIGATION OF SOLID COMPONENTS OF INTERPLANETARY MATTER BY MEANS OF ROCKETS AND ARTIFICIAL EARTH SATELLITES. [1959] 18p. (1 fig. omitted) 9 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16764

Trans. of Uspekhi Fizicheskikh Nauk (USSR) 1957, v. 63, no. 1, p. 253-265.

The most pressing problems which are to be solved in the first stage of the investigations are the determination of the shower of meteoric particles, and a study of their energy spectrum. Having determined separately the mass spectra and velocity spectra, it would be essential to interpret the energy spectra of the particles in the flow.

Vernov, S. N., Logachev, I. Yu. and others.
RESEARCH ON VARIATIONS OF COSMIC RADIATION. [1959] 15p. 18 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16758

Trans. of unidentified Russian article.

The present article attempts to discuss the problem of using the artificial earth sattelite for studying the variations of cosmic radiation.

BEHAVIORAL SCIENCES

Pishchugin, I.
PHYSICAL TRAINING FOR PILOTS (Fizicheskaya Podgotovka Letchika). 14 Apr 59 [4]p. (69 figs. omitted). AF 1255702.
Order from LC or SLA mi$1.80, ph$1.80 59-16473

Summarized trans. of Kryl'ya Rodiny (USSR) 1958, no. 12, p. 24-25.

BIOLOGICAL SCIENCES

Livenson, A. R.
THE USE OF ULTRASOUND IN AEROSOL THERAPY 17 June 59, 10p. (4 figs. omitted) 9 refs. JPRS: L-803-N.
Order from OTS $0.50 59-13580

Trans. of Meditsinskaya Promyshlennost' SSSR, 1959 [v. 13] no. 1, p. 17-24.

The feasibility of using an ultrasound atomizer for inhalation apparatus is discussed, after a background review of the mechanisms of ultrasonic fog formation. The experimental atomizer used has an ultrasound emitter functioning at a frequency of 800 KC/sec with a power of 45 w. The ultrasound atomizer is roughly 10 times as efficient as the jet atomizer tested for comparison in terms of aerosol density and homogeneity. The aerosol charge is always negative. Reference is made to the use of a concave disk of ceramic barium titanate as a focusing device: this emitter must have an angle of opening not exceeding 60° in order to use the lines of the ultrasound field which sharply converge at the surface of the liquid. Reference is made to ultrasound atomizers manufactured in Belgium and to others produced by "foreign firms". Apparently there are only experimental models available in the USSR.

Pervomayskiy, G. S.
VARIATION IN PASTURE TICKS (ACARINA, IXODIDAE) AND ITS SIGNIFICANCE FOR SYSTEMATICS. [1959] 8p. Trans. 5 (T5).
Order from LC or SLA mi$1.80, ph$1.80 59-15839

Trans. of summary (p. 191-197) of Vsesoyuz[noye] Ent[omologicheskoye] Obshch[estvo]. Trud[y] (USSR) 1954, v. 44, p. 62-201.

Zbarskiy, I. B.
PROBLEMS OF CELL BIOCHEMISTRY (Problemy Biokhimii Kletki). [1959] 23p. Trans. A-1009.
Order from LC or SLA mi$2.70, ph$4.80 59-16805

Trans. of Akademiya Nauk SSSR. Vestnik, 1957, v. 27, no. 8, p. 26-36.

Protein synthesis, mitosis, the role of DNA, and the potentialities of cytodiagnosis of neoplasms, are among the topics discussed in this survey, which appears to be based primarily on non-Soviet sources.

Anatomy and Physiology

REFERATIVNYY ZHURNAL. BIOLOGIYA (USSR) 1958, NO. 19 (Soviet Abstracts. Biology). 22 July 59, 62p. JPRS: 1799-N.
Order from OTS $1.00 59-13738

Contents:
Section S. Human and Animal Morphology. Abstracts 88299-88459.

Complete translations of those entries which were originally published in the Sino-Soviet bloc and in Yugoslavia.

Beritov, I. S.
ROLE OF THE CEREBRAL CORTEX IN SPATIAL ORIENTATION. 24 Mar 59, 12p. 9 refs. JPRS L-1573-D.
Order from OTS $0.50 59-11473

Trans. of *Fiziologicheskiy Zhurnal SSSR, 1958 [v. 44] no. 11, p. 1017-1025.

Bogoyavlenskaya, N. V.
THE ROLE OF THE NERVOUS SYSTEM IN REGULATING THE MECHANISM OF BLOOD CIRCULATION. 16 July 59, 29p. 133 refs.
JPRS: L-1758-D.
Order from OTS $0.75 59-11690

Trans. of Uspekhi Sovremennov Biologii (USSR) 1958, v. 45, no. 1, p. 80-96.

Braunsteiner, H.
FURTHER STUDIES ON THROMBOCYTES UNDER THE ELECTRON MICROSCOPE. [1959] [3]p. 6 refs.
AERE Lib/Trans. 502.
Order from SLA mi$1.80, ph$1.80 59-17331

Summary trans. of Acta Haematologica (Switzerland) 1950, v. 3, no. 3/4, p. 170-173.

See also 59-17332

Braunsteiner, H. and Febvre, H.
THROMBOCYTES AND FIBRIN-FORMATION UNDER THE ELECTRON MICROSCOPE. [1959] [3]p. 5 refs.
AERE Lib/Trans. 503.
Order from SLA mi$1.80, ph$1.80 59-17332

Summary trans. of Acta Haematologica (Switzerland) 1950, v. 3, no. 3/4, p. 174-178.

See also 59-17331

Limmacher, J.
THE DEPENDENCE OF THE WATER AND SALT EXCRETION ON THE AGE OF THE EXPERIMENTAL ANIMALS AND THE ENDOCRINE CONDITIONS CONNECTED WITH THIS. [1959] 2p.
Order from SLA mi$1.80, ph$1.80 59-17074

Trans. of summary of mono. (dissertation) die Abhängigkeit der Wasser- und Salzausscheidung vom Alter des Versuchstieres und mit Diesem in Zusammenhang Stehenden Endokrien Verhältnissen, Basle U., 1958.

Nikolayeva, V. I.
MORPHOLOGICAL CHANGES DUE TO THE EFFECT OF CHANGES IN ATMOSPHERIC PRESSURE UNDER EXPERIMENTAL CONDITIONS. 13 July 59, 6p.(2 figs. omitted) 8 refs. JPRS: L-1756-D.
Order from OTS $0.50 59-11688

Trans. of Arkhiv Patologii (USSR) 1959 [v. 21] no. 2, p. 28-31.

To test the effect of changing atmospheric pressure on the viscera, 6 dogs were subjected to a single change from 424 to 56 mm Hg, and 4 dogs to multiple changes within the same pressure range in periods varying from 2 to 7 days. The length of time at which various pressures were maintained is ambiguously expressed. Counterpressure to the body was applied by means of "altitude suits" and breathing was maintained by a supply of oxygen under pressure. Death from acute anoxia due to oxygen supply failure occurred at the time of the experiment in 2 dogs. The changes observed at autopsy of the rest of the animals, which had been sacrificed (acute peripheral emphysema of the lungs, nidi of atelectasis, mild circulatory disturbances in brain, myocardium liver, kidneys and GI tract) are considered to have been adaptive reactions which were not dangerous to life.

Ponomarev, L. Ye and Sokolova, G. M.
ACCLIMATIZATION OF MAN ON ICE FLOES IN THE NORTH ARCTIC OCEAN. 21 July 59, 8p.
JPRS: 820-D.
Order from OTS $0.50 59-11712

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 1, p. 100-106.

Observations made during the period 1955-1956 on the blood pressure, vascular tone, and blood count of members of a team on a floating polar station are reported.

Schwarz, Willy.
ELECTRON MICROSCOPIC INVESTIGATIONS OF THE CHANGES WITH AGE IN THE MEDIA OF THE HUMAN AORTA. 15 Feb 59 [13]p. 33 refs.
AERE Lib/Trans. 512.
Order from SLA mi$2.40, ph$3.30 59-17336

Trans. of Virchow's Archiv [fur Pathologische Anatomie,und Physiologie und Klinische Medizin] (Germany) 1954, v. 324 [no. 5] p. 612-628.

The media of the aorta of human beings of different ages (13, 20, 45, 79, 80, 84, 86 years were investigated, by means of the electron microscope, and compared with one another. The following pattern was demonstrated. As the age increases there is a stiffening of the elastic fibres, accompanied by a change of the cementing agent which is explained in the sense of still higher polymerisation. The methods for silvering connective tissue, used by Gömöri, show that the mode of silvering of the elastic tissue decreases more and more as the age increases. Instead, a mode of silvering which is characteristic of rigid collagen fibrils is found. An increase of the length of period of the fibrils is observed as the age increases. These two findings are appraised as "collagenisation" of the elastic fibrils in the ageing process. Simultaneously there occurs an increase in thickness of the old fibrils, while new fibrils are formed from the chromotropic interstitial matter. This finds its expression in the Gaussian distribution curves of the fibril thicknesses for aortas of various ages. The application of a second method of silvering (periodic acid-silver tetrammine) that chemical factors, which are identical with the differentiation factors of the connective tissue system, play a part in the "collagenisation" of the ageing elastic systems. Deposits of lime salts are visible, even in the young aorta, whose size and form are so far changed, as the age increases, that they are detectable under certain circumstances, and at an advanced age of the aorta, by means of the optical microscope.

Vladimirov, G. Ye., Sedina, N. S. and others.
RESEARCH ON NEUROPHYSIOLOGY AT THE MILITARY-MEDICAL ACADEMY IMENI S. M. KIROV. 26 Mar 59, 10p. JPRS: L-723-N.
Order from OTS $0.50 59-13369

Trans. of Tezisy Dokladov Nauchnoy Sesii, Voyenno-Meditsinskaya Ordena Lenina Akademiya imeni S. M. Kirova (Theses of Reports of the Scientific Session [of] the Military-Medical Order of Lenin Academy, imeni S. M. Kirov) 29 Oct-2 Nov 56, Leningrad, p. 6-8, 31-32, 35-37, 46-48, 54-55.

The papers here summarized include: Metabolic changes in the cerebrum and heart during hypothermia connected with cessation of blood circulation, by G. Ye. Vladimirov; The state of excitation and inhibition processes in the cerebral cortex in burns, by N. S. Sedina; The use of hypothermia and neuroplegic agents in a system of combined antishock measures in severe experimental burns, by N. I. Iochetygov; The effect of neuroplegic mixtures on the resistance of animals to anoxia and burn shock, by I. T. Vdovin and others; The pharmacology of certain new stimulators of the nervous system and methods of using them in medical practice, by I. I. Baryshnikov and others; and, Characteristics of neuropsychic disturbances in vascular hypertension and hypotension in young patients, by A. A. Kvasenko.

Botany

Lebedev, N. V.
SELECTION OF BRANCHED WHEAT-AGROPYRON HYBRIDS OF THE WINTER TYPE (Selektsiya Vetvistokolosykh Pshenichnopyreynykh Gibridov Ozimogo Tipa). [1959] 8p. (1 illus. omitted). Trans. A-1031.
Order from LC or SLA mi$1.80, ph$1.80 59-16825

Trans. of Priroda (USSR) 1959, v. 48, no. 2, p. 98-100.

Shcherbakov, V. K.
CONFERENCE ON POLYPLOIDY IN PLANTS (Soveshchaniye po Poliploidii u Rastenii). [1959] 9p. 24 refs. Trans. A-1025.
Order from LC or SLA mi$1.80, ph$1.80 59-16820

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1959, v. 24, no. 1, p. 151-154.

General Biology

Chugunin, Ya. V.
ABOUT THE MICROBIOLOGICAL METHOD (O Mikrobiologicheskom Metode). [1959] 4p. Trans. A-1013.
Order from LC or SLA mi$1.80, ph$1.80 59-16809

Trans. of Zashchita Rastenii ot Vrediteley i Bolezney (USSR) 1959, v. 4, no. 1, p. 36-37.

The economically sound method of insect pest control is the preservation and utilization in powdered form of the carcasses of insects which die from disease as a culture medium for pathogenic microorganisms. The resulting biopreparation is used as a spray. One worker can prepare from 70 to 120 g of air-dried insect carcasses in a day. Cost is estimated to be one-tenth that of DDT. The method has been shown to be effective against gypsy moths in the Crimea.

Rudakov, N. P.
MARKING OF FISH BY RADIOACTIVE CERIUM (Ce144 - Pr144) (Mechenie Ryb Radioaktivnym Tseriem (Ce144 + Pr144) tr. by Leda V. Sagen. [1959] 5p.
Order from LC or SLA mi$1.80, ph$1.80 59-14722

Trans. of Rybnoe Khozyaystvo (USSR) 1958, Sep, p. 29-31.

Sartbayev, S. K. [and others].
MATERIALS ON THE BIOLOGY OF HAEMAPHYSALIS WARBURTONI NUTT., 1912, IN CONDITIONS OF KIRGHIZIA. [1959] [10]p. 15 refs. Trans. 12 (T12).
Order from LC or SLA mi$1.80, ph$1.80 59-15767

Trans. of Akad[emiya Nauk] Kirgi[zskoy] SSR [Frunze]. Inst[itut] Zool[ogii i] Parasit[ologii. Trudy] 1955 [no. 5] p. 121-127.

Svetovidov, A. N.
TRAINING OF SCIENTIFIC STAFFS AT THE ZOOLOGICAL INSTITUTE OF THE ACADEMY OF SCIENCES USSR (O Podgotovke Nauchnykh Kadrov v Zoologicheskom Institut Akademii Nauk SSSR). [1959] 9p. Trans. A-1023.
Order from LC or SLA mi$1.80, ph$1.80 59-16818

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1959, v. 24, no. 1, p. 155-158.

Statistics are presented on the number of doctoral dissertations, distribution of candidates according to specialty, etc, from 1930 to 1957.

Sylakova, H. I.
CONFERENCE ON QUESTIONS OF THE CHEMICAL BASIS OF GENETICS. 3 Mar 59, 3p. JPRS: L-661-N.
Order from OTS $0.50 59-13228

Trans. of Ukrayins'kyy Biokhimichnyy Zhurnal (USSR) 1958, v. 30, no. 2, p. 317-318.

The work of a meeting held by the Kiev section of the Ukrainian Society of Physiologists, Biochemists and Pharmacologists (November 1957) is summarized. Attention appears to have been focused on the role of DNA.

Vorob'yev, V. I. and Zhirmunskiy, A. V.
SCIENTIFIC CONFERENCE OF THE INSTITUTE OF CYTOLOGY, ACADEMY OF SCIENCES USSR (NO. 1) (Pervaya Nauchnaya Sessiya Instituta Tsitologii AN SSSR). [1959] 14p. Trans. A-1029.
Order from LC or SLA mi$2.40, ph$3.30 59-16823

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958, v. 23, no. 5, p. 618-622.

Microbiology

Bilay, V. Y.
CHEMICAL ACTIVITY OF FUNGI AND THE TASKS OF UTILIZING THEM IN THE NATIONAL ECONOMY. 31 July 59, 6p. 2 refs. JPRS: L-1811-D.
Order from OTS $0.50 59-11741

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959, v. 21, no. 1, p. 21-24.

Drobot'ko, V. G.
MICROBIOLOGY AND THE PROSPECTS FOR ITS DEVELOPMENT IN 1959-1965 IN THE UKRAINIAN SSR. 31 July 59, 6p. JPRS: L-1807-D.
Order from OTS $0.50 59-11737

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959, v. 21, no. 1, p. 5-8.

Pseudomonas sinuosa has been found to supply vitamins to plants in large quantities, and to increase their yield. The development of a new type of fertilizer from this bacterium can be anticipated. In connection with general remarks on the various fields of investigation now open to microbiologists, it is pointed out that in the Ukrainian SSR these specialists are few in number, and that many must be trained.

Frenkel', G. M.
THE TASKS OF NUTRITIVE AND FERMENTATIVE MICROBIOLOGY IN THE IMMEDIATE FUTURE. 31 July 59, 5p. JPRS: L-1809-D.
Order from OTS $0.50 59-11739

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959, v. 21, no. 1, p. 13-16.

Reference is made to the work of the Institute of Microbiology of the Ukrainian SSR in testing bacteria for production of butyl alcohol from such raw materials as molasses, corncobs, or sunflower seed hulls. The Scientific Research Laboratory of the All-Union Institute of the Alcohol Industry has developed a method for producing pentose hydrolysates from corncobs, with a resultant 50% saving of corn flour at the Dokshukinskiy Acetone-Butyl Plant. Reference is made to the use of microbiological processes in the industrial synthesis of polymers, but it is not clear whether this work is done in the USSR or abroad.

Iyerusalimskiy, N. D.
SYMPOSIUM ON CONTINUOUS CULTIVATION OF MICROORGANISMS (Simpozium po Nepreryvnomu Kul'tivirovanyu Mikroorganizmov). [1959] 4p. Trans. A-1019.
Order from LC or SLA mi$1.80, ph$1.80 59-16814

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1958, v. 28, no. 11, p. 73-74.

The symposium was organized by the Czechoslovak Academy of Sciences and held in Prague from June 23 to 28, 1958.

Rashba, O. Ya.
PROBLEMS AND PROSPECTS FOR THE DEVELOPMENT OF BIOCHEMISTRY OF MICRO-ORGANISMS. 31 July 59, 6p. JPRS: L-1810-D.
Order from OTS $0.50 59-11740

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959) v. 21, no. 1, p. 17-20.

Rubenchik, L. I.
THE TASKS OF AGRICULTURAL MICROBIOLOGY DURING 1959-1965. 31 July 59, 6p. JPRS: L-1808-D.
Order from OTS $0.50 59-11738

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959, v. 21, no. 1, p. 9-12.

Bacterial fertilizers (phosphobacterin, azotobacterin, nitragin, etc.) have been developed. The possibility has been established of influencing the formation of physiologically active substances by soil microorganisms with the aid of trace elements. Methods for the introduction of yeast into fodders have been developed. Yeasts have been found which, reproducing on grain, chaff and meal, produce riboflavin: the product can be used in poultry raising. Azotobacter has been successfully used in fattening pigs. The information here presented all relates to developments in the Ukrainian SSR.

Solomkin, P. S., Kvasnikov, A. K. and Vasil'chenko, I. V.
ON THE QUESTION CONCERNING PLURALITY OF HOG CHOLERA VIRUS IN SWINE (K Voprosu o Pluralitete Virusa Chumy Sviney). 27 Mar 59, 9p. Trans. V1408.
Order from LC or SLA mi$1.80, ph$1.80 59-14676

Trans. of Veterinariya (USSR) 1959, v. 36, no. 2, p. 45-48.

Pathology

CONGRESS OF THE CPSU (NO. 21) AND TASKS OF PATHOLOGICAL PHYSIOLOGY. 18 June 59, 3p. JPRS: L-831-N.
Order from OTS $0.50 59-13638

Trans. of Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya (USSR) 1959, v. 3, no. 1, p. 3-4.

The most important tasks in pathologic physiology are the further growth of ideological-theoretical bases of Soviet medicine on the grounds of dialectical materialism and the unflagging struggle against bourgeois reactionary ideas advanced by certain reactionary scientists of the capitalistic countries.

A NEW STAGE IN THE BUILDING OF COMMUNISM AND PUBLIC HEALTH. 21 July 59, 6p. 1 ref. JPRS: L-1788-D.
Order from OTS $0.50 59-11713

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 1, p. 3-7.

GREAT MEDICAL ENCYCLOPEDIA: EXCERPTS. 11 Mar 59, 7p. 21 refs. JPRS: 1341-N.
Order from OTS $0.50 59-13288

Trans. of Bol'shaya Meditsinskaya Entsiklopediya (USSR) 1958, v. 6, p. 77-78, 262-263, 549-550, 586-587, 873 and 1160-1161.

Biographical sketches of:
G. V. Vygodchikov, Soviet microbiologist
N. F. Galanin, Soviet radiation hygiene specialist
J. Geyrovsky, Czech chemist
J. Heller, Polish biochemist
A. S. Georgiyevskiy, Soviet military physician
V. A. Gilyarovskiy, Soviet psychiatrist

IMMEDIATE TASKS OF THE MEDICAL SCHOOL OF THE USSR. 22 July 59, 9p. JPRS: 826-D.
Order from OTS $0.50 59-11719

Trans. of Sovetskoye Zdravookhraneniye (USSR) 1959 [v. 18] no. 5, p. 3-9.

MILITARY MEDICAL JOURNAL, 1959, NO. 4. 13 July 59, 166p. (figs. omitted) JPRS: 1736-N.
Order from OTS $3.00 59-13676

Trans. of Voyenno-Meditsinskiy Zhurnal (USSR) 1959, no. 4.

THE SEVEN-YEAR PLAN FOR DEVELOPING THE NATIONAL ECONOMY OF THE USSR AND THE TASKS OF HYGIENE. 17 July 59, 6p. 2 refs. JPRS: L-1766-D.
Order from OTS $0.50 59-11695

Trans. of Gigiyena i Sanitariya (USSR) 1959, v. 24, no. 1, p. 3-7.

Allaria, A.
INJURIES OF THE HAND IN SKIING (Traumá della Mano da Sci). Feb 59 [13]p. (14 figs. omitted) 23 refs.
Order from SLA mi$2.40, ph$3.30 59-10968

Trans. of Studi di Med. e Chir. dello Sport (Italy) 1950, v. 4, p. 12-23.

Baroyan, O. V.
THE PRELIMINARY RESULTS OF VACCINATION AGAINST POLIOMYELITIS IN THE USSR. 5 Mar 59, 20p. (2 figs. omitted) JPRS: L-669-N.
Order from OTS $0.75 59-13244

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik, 1958, v. 13, no. 11, p. 51-63.

Data are presented on the vaccination of ca. 1.5 million persons with Soviet anti-polio preparations, manufactured in accordance with the Salk method. The epidemiological effectiveness of the Soviet preparations was fully comparable with that of foreign preparations. Mass vaccination against poliomelitis under epidemic conditions did not evince any provocative effect on the part of the vaccine.

Blagman, G. F., Dymshits, B. A. and others.
RADIOACTIVE IODINE THERAPY OF THYROTOXICOSIS PATIENTS. [1959] 5p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3604

Trans. of Klinicheskaya Meditsina (USSR) 1955, v. 33, no. 6, p. 37-40.

Chumakov, M.
HEMORRHAGIC FEVERS. 11 Mar 59, 15p. 17 refs. JPRS: 1342-N.
Order from OTS $0.50 59-13289

Trans. of Bol'shaya Meditsinskaya Entsiklopedia (USSR) 1958, v. 6, p. 777-789.

Davydovskiy, I. V.
THE TASKS OF MEDICAL SCIENCE IN THE FUTURE SEVEN-YEAR PLAN. 5 Aug 59, 7p. JPRS: 850-D.
Order from OTS $0.50 59-11746

Trans. of Akademiya Nauk SSSR. Vestnik. 1959, v. 14, no. 3, p. 3-8.

Erkes, Fritz.
REGRESSION OF MALIGNANT TUMORS FOLLOWING PALLIATIVE OPERATIONS (Rückbildung Maligner Tumoren im Anschluss an Palliative Eingriffe). [1959] [3]p. 4 refs.
Order from SLA mi$1.80, ph$1.80 59-17110

Trans. of Zentralblatt für Chirurgie (Germany) 1925, v. 52, no. 51, p. 2877-2878.

Faynberg, M. G.
DATA ON THE CLINICAL SYMPTOMS, PATHOGENESIS, AND PREVENTION OF OCCUPATIONAL DISEASES OF THE NERVOUS SYSTEM IN FOUNDRY CLEANERS. 17 July 59, 7p. 10 refs. JPRS: L-1768-D.
Order from OTS $0.50 59-11697

Trans. of Gigiyena i Sanitariya (USSR) 1959, v. 24, no. 1, p. 35-40.

Observations on workers using pneumatic reciprocating tools with a percussion action weighing 8 to 10 kg and making up to 1,900 strokes/min are reported. Of 230 persons examined, 100 exhibited trophic, vasomotor and secretory disturbances and impairment of muscular strength and sensitivity. It is suggested that parabiotic processes develop as a result of the effects of mechanical, thermal and vibratory factors. Proceeding on this theory, patients were treated by galvanization in combination with iontophoresis. Neostigmine and dibasol proved to be effective drugs. The use of protective mittens is strongly recommended.

Fink, Hermann.
DOES ALIMENTARY LIVER NECROSIS PLAY A ROLE OR NOT IN THE TECHNICAL DRYING OF MILK? (Spielt das Problem Alimentäre Lebernekrose beim Technischen Trocknen der Milch eine Rolle oder Nicht?). [1959] [6]p. 24 refs.
Order from SLA mi$1.80, ph$1.80 59-17099

Trans. of die Naturwissenschaften (Germany) 1958, v. 45, no. 15, p. 375-376.

A reply to the preceding article (59-17100) by K. Lang and coworkers. (See also 59-17097, 59-17301)

Kassirskiy, I. A. and Vaysberg, G. Ye.
CURRENT PROBLEMS OF THE THERAPEUTIC APPLICATION OF ANTIBIOTICS. 25 Mar 59, 19p. 12 refs. JPRS: 1320-N.
Order from OTS $0.50 59-13268

Trans. of Antibiotiki (USSR) 1958, v. 3, no. 2, p. 114-122.

General survey, based in large measure on non-Soviet material.

Kochergin, I. G.
THE GREAT ADVANCE IN PUBLIC HEALTH AND MEDICINE IN NEW CHINA. 21 July 59, 12p. JPRS: L-1789-D.
Order from OTS $0.50 59-11714

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 1, p. 8-17.

Progress and goals in clinical medicine, pathology, surgery and biochemistry are discussed in general terms. Chinese folk medicine is being examined by investigators and physicians to determine the scientific bases for such practical measures as moxibustion and acupuncture. Acupuncture has been proved to be effective in bronchial asthma, facial paralysis, hypertension, glaucoma, etc. It has marked effects upon hematopoiesis. Drugs used in folk medicine are also being investigated, to determine their pharmacological properties and chemical structure.

Kurashov, S. V.
THE FULFILLMENT OF RESOLUTIONS OF THE CONGRESS [No. 21] OF THE CPSU. 5 June 59, 8p. JPRS: L-797-N.
Order from OTS $0.50 59-13562

Trans. of Klinicheskaya Meditsina (USSR) 1959, v. 37, no. 2, p. 3-7.

Public health goals for the Soviet Union are discussed in general terms. It is pointed out that the physical development and health of formerly deprived groups in e.g. the Tatar ASSR have reached or surpassed the norms for the USSR.

Lang, Konrad, Pabst, Wolfgang, and Griem, Wolfgang.
SKIM MILK DOES NOT ACQUIRE LIVER NECROTIZING PROPERTIES IN TECHNOLOGICAL DRYING (Magermilch Erhält Keine Lebernekrosen Verursachenden Eigenschaften beim Technische Trocknen). [1959] [6]p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-17100

Trans. of die Naturwissenschaften (Germany) 1958, v. 45, no. 15, p. 373-374.

See also 59-17097, 59-17099, 59-17301

Lavrova, I. G. and Sechenov, I. M.
THE ORGANIZATION OF DOCTORS' OFFICE HOURS IN A POLYCLINIC. 21 July 59, 2p. JPRS: L-1801-D.
Order from OTS $0.50 59-11725

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 2, p. 149-151.

Lyubomudrov, V. Ye.
VIBRATION AND ITS SIGNIFICANCE IN INDUSTRIAL HYGIENE, YE. TS. ANDREYEVA-GALANINA, MEDGIZ, 1956 (BOOK REVIEW). 21 July 59, 2p. JPRS: L-1790-D.
Order from OTS $0.50 59-11715

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 1, p. 152-153.

Matveyev, K. and Gannushkin, M.
BOTULISM. 13 Mar 59, 22p. (2 tables 7 figs. omitted) 10 refs. JPRS: 1339-N.
Order from OTS $0.75 59-13287

Trans. of Bol'shaya Meditsinskaya Entsiklopediya (USSR) 1958, v. 4, p. 266-287.

Merkov, A. M.
SHIFTS IN THE MORTALITY RATE OF THE USSR AND CAPITALIST COUNTRIES. 17 July 59, 8p. 6 refs. JPRS: L-1770-D.
Order from OTS $0.50 59-11699

Trans. of Gigiyena i Sanitariya (USSR) 1959, v. 24, no. 1, p. 59-65.

Minnini, G. and Cangi, G.
HYDROCHLOROTHIAZIDE IN THE THERAPY OF HYPERTENSION: PRELIMINARY CLINICAL STUDY (L'Idroclorotiazide nella Terapia dell'Ipertensione Arteriosa. Studio Clinico Preliminare). [1959] 10p. 26 refs.
Order from SLA mi$1.80, ph$1.80 59-17069

Trans. of Minerva Medica (Italy) 1959, v. 50 [no. 42] p. 1613-1616.

In 22 of 25 persons with essential hypertension, whether in good circulatory condition or congestive decompensation of varying degrees, the systolic and diastolic values fell during the first 24 hr after start of therapy with hydrochlorothiazide. The lowest values were reached between the 4th and 5th day of therapy and remained there as long as the drug was given. In a few cases where treatment lasted more than 30 days, moderate rises were found, but never to the starting level. This hypotensive effect was observed in both the hospitalized and in the ambulatory patients. In only 2 of the 5 patients with renal hypertension, a moderate reduction of the pressure levels was seen. The average fall of pressure in the patients was 20/5, with a maximum of 75/30. No significant changes of the blood pressure were observed in patients in the ortho- or clinostatic position. When administration of the drug was interrupted for a few days the blood pressure, after having been stationary for 1 or 2 days, began to rise again and finally reached the initial values. A resumption of therapy brought about the same hypotensive observed in the first cycle. In the patients with hypertensive cardiopathy and signs of mild or severe congestive insufficiency of the heart, the reduction of the blood pressure was accompained by a considerable increase of the diuresis. This effect manifested itself 3 to 5 hr after administration of the first tablet of hydrochlorothiazide and reached its maximum in the first 24 to 48 hr of therapy, in proportion quantitatively to the extent of the edema present. After the diuresis and the considerable polyuria of the first few days, the values stabilized at around 1000 to 1500 cc daily. Consequent to this diuretic output, the patients lost weight, on the average of 3 kg during the first 3 days of therapy, with variations from 2 to 6 kg, depending on the extent of the edema.

Moeschlin, S.
HYPNOTIC INTOXICATIONS (Schlafmittelvergiftungen). [1959] 31p. 44 refs.
Order from SLA mi$3.00, ph$6.30 59-15879

Trans. of Schweiz[erische] Med[izinische] W[ochenschrift] (Switzerland) 1959, v. 89 [no. 7] p. 181-187.

More and more cases of Doriden addiction (glutaric acid imide) have been seen in Switzerland in the last 2 years. As seen in other chronic intoxications with sleeping drugs, Doriden produces, besides the well-known nervous symptoms, a very pronounced anorexia and emaciation. In Switzerland, probably 0.25% of all patients entering hospitals are acute poisonings with sleeping drugs, that is about 1300 cases for 1957, with only 31 deaths. The lethality has decreased to 2 or 3% because of the use of the modern, more rapidly eliminated sleeping drugs, and also due to the improvement of the treatment (Megimid, Noradrenalin, intubation, artificial respiration and antibiotics).

Neupokoyeva, T. L.
THE NEXT TASKS OF RURAL PUBLIC HEALTH. 21 July 59, 10p. 2 refs. JPRS: L-1800-D.
Order from OTS $0.50 59-11724

Trans. of Sovetskaya Meditsina (USSR) 1959, v. 23, no. 2, p. 141-149.

Pavlovskiy, Ye. N.
CONTROLLABLE INFECTIONS. 3 Aug 59, 9p. JPRS: L-884-N.
Order from OTS $0.50 59-13757

Trans. of Nauka i Zhizn' (USSR) 1959 [v. 26] no. 5, p. 33-36.

The nature of communicable disease and the mechanisms of disease transmission are described in elementary-school language.

Sagatov, R. S.
PERSPECTIVES OF DEVELOPMENT OF PUBLIC HEALTH IN THE UZBEK SSR. 22 July 59, 6p. JPRS: L-1797-D.
Order from OTS $0.50 59-11721

Trans. of Sovetskoye Zdravookhraneniye (USSR) 1959 [v. 18] no. 5, p. 34-38.

Smulevich, B. Ya.
MORBIDITY, MORTALITY, AND THE PHYSICAL DEVELOPMENT OF THE POPULACE. Lecture no. 3 on the State of Health of the Populace and Methods of Determining It (Laktsiya Tret'ya iz Tsikla: Sostoyaniye Zdorov'ya Naseleniya i Metody Yego Opredeleniya). 2 June 59, 140p. JPRS: 1632-N.
Order from OTS $2.75 59-13560

Trans. of mono. Zabolevayemost', Smertnost', i Fizicheskoye Razvitiye Naseleniya, Moscow, 1957, p. 3-132.

Wagner v. Jauregg, J.
PSYCHIC DISTURBANCES IN MYXEDEMA (Myxödem - Psychische Störungen). Jan 59 [9]p.
Order from SLA mi$1.80, ph$1.80 59-10841

Trans. of mono. Handbuch der Psychiatrie. Spez. Teil, 2 Abt., Myxödem und Kretinismus, Leipzig, 1915, p. 10-16.

Yang, Chien, Liu, Yung and Li, Hsiu-Ch'in.
PRESENT STATUS AND FUTURE OF CHINA'S RESEARCH IN PATHOLOGICAL PHYSIOLOGY. 9 July 59, 20p. JPRS: L-1137-D.
Order from OTS $0.50 59-11321

Trans. of Sheng-li K'o-hsueh Chin-chan (Chinese People's Republic) 1957, v. 1, no. 1, p. 39-51.

Zverev, A. F.
CONCERNING THE QUALITY OF TRAINING OF DOCTORS. 22 July 59, 7p. JPRS: L-1796-D.
Order from OTS $0.50 59-11720

Trans. of Sovetskoye Zdravookhraneniye (USSR) 1959 [v. 18] no. 5, p. 9-14.

Pharmacology and Toxicology

Bartorelli, C.
THE NEW SALURETIC DRUGS (Sui nuovi farmaci saluretici). [1959] 3p.
Order from SLA mi$1.80, ph$1.80 59-17075

Trans. of Minerva Medica (Italy) 1959, v. 50 [no. 42] p. 1607.

See also 59-17076

Didenko, S. L and Klyuyeva, N. G., editors.
LIVE BACTERIAL VACCINES USSR. COLLECTION OF OFFICIAL INSTRUCTIONS FOR MANUFACTURE AND CONTROL OF BACTERIAL PREPARATIONS AND DIRECTIONS FOR THEIR USE. 20 May 59, 85p. JPRS: L-1678-D.
Order from OTS $2.25 59-11555

Trans. of mono. Sbornik Ofitsyal'nykh Instruktsiy po Proizvodstvu i Kontrolyu Bakteriynykh Preparatov i Nastavleniy po Ikh Primeneniyu: Zhivyye Bakterial'nyye Vaktsiny, Moscow, 1957, p. 1-49.

The live vaccines in question are antiplague vaccines, antitularemia vaccine, antibrucellosis vaccine, STI antianthrax vaccine for humans, and BCG vaccine.

Halpern, Bernard and Gaudin, Olivier.
PHYSIOLOGICAL PROPERTIES OF TRITHIO-PARAMETHOXY-PHENYLPROPENE. 4 June 59, 5p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-15912

Trans. of Académie Nationale de Médecine [Paris] Bulletin (France) 1947, 3 ser., v. 131 [no. 15/16] p. 265-267.

Experiments indicate that trithioparamethoxyphenyl-propene causes a diuretic activity in the animal which is characterized by a considerable azoturic effect, which is all the more remarkable the richer the animal's diet is in nitrogenous matter. The rate of the chlorides does not vary appreciably. A choleretic action has also been observed.

Kvater, Ye. I.
SEVERAL PRINCIPLE PROBLEMS IN STIMULATION OF LABOR. 25 June 59, 16p. (2 figs. omitted) 1 ref. JPRS: L-849-N.
Order from OTS $0.50 59-13661

Trans. of Sovetskaya Meditsina (USSR) 1958, v. 22, no. 2, p. 94-103.

This is a general survey, in which reference is made to the use of sympathomimetics, estrogens, ergot alkaloids, vitamins, etc. in various stages of parturition.

Neher, R., Desaulles, P. and others.
ISOLATION, CONSTITUTION AND SYNTHESIS OF A NEW ACTIVE SUBSTANCE FROM ADRENALS. (Isolierung, Konstitution und Synthese eines neuen Steroides aus Nebennieren. Ueber Steroide, Mitteilung 155) Rept. no. 155 on Steroids. [1959] 56p. 72 refs.
Order from SLA mi$3.60, ph$9.30 59-17054

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1958, v. 41, p. 1667-1692.

A new crystalline substance has been isolated from hog adrenals in a yeild of about 30 mg per 1000 kg glands. It appears to act under certain biological conditions as a sodium excreting factor. This compound is shown to be 3β, 16α-dihydroxy-allopregnane-20-one; several syntheses of it as well as a number of derivatives are described.

Palmieri, A.
PRELIMINARY DATA ON THE DIURETIC ACTIVITY OF HYDROCHLOROTHIAZIDE (Dati Preliminari sull'Attivita Diuretica dell'Idroclorotiazide). [1959] 12p. 14 refs.
Order from SLA mi$2.40, ph$3.30 59-17076

Trans. of Minerva Medica (Italy) 1959, v. 50 [no. 42] p. 1628-1632.

See also 59-17075

Ripyakh, L. A. and Kim, A.
MASSIVE SOLANINE POISONING. 10 Mar 59, 6p. JPRS: L-673-N.
Order from OTS $0.50 59-13252

Trans. of Sovetskaya Meditsina (USSR) 1958 [v. 22] no. 10, p. 129-131.

Observations in North Korea in 1952-1953 are reported. The Korean population at that time was by force of circumstance using rotten potatoes as a dietary staple. The prolonged consumption of these potatoes resulted in severe solanin poisoning, sometimes with fatal outcome.

Shalamberidze, Yu. P.
DATA CONCERNING THE HYGIENIC BASIS OF MAXIMUM PERMISSIBLE CONCENTRATION OF LEAD SULPHIDE IN ATMOSPHERIC AIR. 21 July 59, 7p. 5 refs. JPRS: L-1802-D.
Order from OTS $0.50 59-11726

Trans. of Gigiyena i Sanitariya (USSR) 1959 [v. 24] no. 3, p. 9-14.

Data are presented on the concentration of lead sulphide in the air, soil, drinking water and food products in the immediate vicinity of a plant for the primary treatment of lead ores. Concentrations of lead sulphide in the urine of 80 persons living in the vicinity who did not have any contact with lead compounds in their work were determined. Experiments with white mice are described which were undertaken to determine the effect of small concentrations of lead on the activity of the higher nervous centers. The maximum permissible daily concentration proposed as a result of these investigations is 1.7 γ/cu m. A sanitary protection zone with a depth of not less than 500 m should be established around lead-ore processing plants.

Solov'yev, V. N.
CHANGES IN THE BACTERICIDAL ACTIVITY OF BLOOD SERUM AND THE PROPERDIN SYSTEM UNDER THE EFFECT OF CORTISONE. 17 Mar 59, 6p. 7 refs. JPRS: 1319-N.
Order from OTS $0.50 59-13267

Trans. of Antibiotiki (USSR) 1958, v. 3, no. 2, p. 63-67.

After the administration of cortisone acetate in a dose of 20 mg/kg body wt to mice and rats, the bactericidal activity of the sera of these animals drops considerably. Decrease in the bactericidal activity of the serum is produced primarily by a reduction in the properdin level, and may be considered to be one of the mechanisms of reduction of resistance in the early periods after administration of cortisone.

Radiobiology

EFFECT OF IONIZING RADIATION ON THE NERVOUS SYSTEM IN ANIMALS. 5 Aug 59, 24p. 94 refs. JPRS: L-1823-D.
Order from OTS $0.75 59-11754

Trans. of Fiziologichnyy Zhurnal 1959 (USSR) v. 5, no. 1, p. 132-146.

This survey article is essentially an annotation of the accompanying bibliography of Soviet sources.

SOVIET REACTOR SHIELDING: ANNOTATED BIBLIOGRAPHY. 27 Jan 59 [30]p. 109 refs. AF 1255481.
Order from LC or SLA mi$2.70, ph$4.80 59-12901

Trans. from Soviet open sources, 1954-1958.

The bibliography consists of 6 sections: 52 items of primary importance; 26 items of secondary importance; 3 translations in English; 5 bibliographic references found in the General Electric Aircraft Nuclear Propulsion Department publication Systems Information, Jan 20, 1958; 4 theoretical compilations; and 19 books or articles where information on shielding is suspected, but which were unavailable to the compiler. The entries in each section are arranged in alphabetical order by author or by publication.

Alekseyeva, A. M. and Timofeyeva, N. M.
CHANGES IN THE CHEMICAL COMPOSITION OF THE TESTES IN ATROPHY CAUSED BY IONIZING RADIATION. 24 July 59, 9p. 9 refs. JPRS: L-1794-D.
Order from OTS $0.50 59-11718

Trans. of Voprosy Meditsinskoy Khimii (USSR) 1959, v. 5, no. 1, p. 48-53.

Allaverdyan, S. N., Grigoryan, G. T. and others.
CONCERNING THE PROBLEM OF THE USE OF FIBRIN FILMS IN RADIATION INJURIES OF THE EXTERNAL INTEGUMENT. 9 June 59, 5p. (2 figs. omitted) 9 refs. JPRS: L-805-N.
Order from OTS $0.50 59-13582

Trans. of Meditsinskaya Radiologiya (USSR) 1959, [v. 4] no. 2, p. 63-66.

Clinical experience with fibrin films used in treatment of 50 patients is reported. A case history is presented, showing successful treatment of a 46 year old patient with a purulent lesion in the inguinal region following x-radiation as a postoperative measure to control lymphosarcoma. This lesion had resisted various therapeutic measures over a period of 3 months.

Bagdasarov, A. A. and Minasov, V. S.
THE MAIN PROBLEMS OF RADIATION TRAUMA. [1959] 15p. AEC-tr-3610.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3610

Trans. of Akademiya Meditsinskikh Nauk SSSR. Vestnik. 1957, v. 12, no. 4, p. 39-45.

Bagdasarov, A. A., Al'perin, P. M. and others.
SIGNS OF CERTAIN FUNCTIONAL DEVIATIONS FOUND IN WORKERS OF ROENTGEN INSTITUTIONS. 18 June 59, 12p. 15 refs. JPRS: L-820-N.
Order from OTS $0.50 59-13624

Trans. of Klinicheskaya Meditsina (USSR) 1959 [v.37] p. 19-25.

The results of hematological examinations of 170 workers in x-ray installations are reported. Peripheral blood picture, leukocyte count, and indices for serum iron, protein, bilirubin, etc. are presented in tabular form. An appended note by the editors of the publishing journal indicates that the staff feels that the cases described have been "overdiagnosed", and that the members of the Moscow Internal Medical Society agree with the editors.

Brodskaya, Ye. A.
REFLEX EFFECTS FROM INTERNAL ORGANS ON THE FUNCTION OF THE GASTRO-INTESTINAL TRACT IN IRRADIATED ANIMALS. 24 Feb 59, (4 figs omitted) 7p. 9 refs. JPRS: L-639-N.
Order from OTS $0.50 59-13193

Trans. of Arkhiv Patologii (USSR) 1958, v. 20, no. 11, p. 53-58.

Irradiation of dogs at a dose of 275 to 293 r elicits, in addition to changes in the activity of the gastro-intestinal tract, marked disturbances in the interoceptive reflex arc from receptors of the rectum on the secretory, excretory, and motor functions of the stomach and on the secretory functions of the small intestine. A certain phasic character in these changes may be discerned. The phases are: (1) a latent period of radiation sickness, (2) a period of clinical manifestations, and (3) a period of recovery and clinical well-being. Especially noticeable changes in the transmission of interoceptive impulses were seen during the third phase. These lasted over a period of six to eight months after irradiation, with no evidence of a tendency toward normalization. Stimulation of the receptors led to variable disturbances of transmission of influences from the rectum on the functions of the gastro-intestinal tract in the irradiated animals: increased interoceptive influence on the secretory and excretory functions of the stomach and small intestine, and reduction, with occasional complete disappearance, of the motor functions. More profound disturbances of the secretory and excretory functions of the stomach, and of the secretory functions of the small intestine, were seen in the first hour of secretion, during stimulation of the rectal receptors. Thus, under the influence of ionizing irradiation, there are significant disruptions in the interoceptive apparatus of the intestine, which, obviously, represents a factor complicating and rendering more formidable the course of the disease, as well as being one of the sources of pathologic impulses.

Chepynoha, O. P. and Khilobok, L. Yu.
PECULIARITIES OF NUCLEOPROTEID COMPLEXES IN RABBIT LUNGS AFTER IRRADIATING THE ANIMALS WITH SUBLETHAL DOSES OF X-RAYS. 5 Mar 59, 12p. (7 figs. omitted) 37 refs.
JPRS: L-659-N.
Order from OTS $0.50 59-13226

Trans. of Ukrayins'kyy Biokhimichnyy Zhurnal (USSR) 1958, v. 30, no. 2, p. 200-209.

Danilenko, A. I.
NATURAL ACTIVITY OF BETA-RADIATION IN HUMAN BLOOD. 21 July 59, 3p. 2 refs. JPRS: L-874-N.
Order from OTS $0.50 59-13707

Trans. of Fiziologichnyy Zhurnal (USSR) 1956, v. 2, no. 3, p. 155-156.

Dimitrov, L. A.
THE EFFECT OF RADIOACTIVE COBALT ON THE RESISTANCE OF THE BODY TO IONIZING RADIATION. [1959] 12p. 31 refs.
Order from LC or SLA mi$2.40, ph$3.30
AEC-tr-3622

Trans. of Meditsinskaya Radiologiya (USSR) 1957, v. 2, no. 4, p. 11-17.

Gorodinskiy, S. M.
INDIVIDUAL PROTECTION DURING WORK WITH UNCOVERED RADIOACTIVE SUBSTANCES. 17 July 59, 7p. (2 figs. omitted) 4 refs. JPRS: L-873-N.
Order from OTS $0.50 59-13706

Trans. of Gigiyena i Sanitariya (USSR) 1956 [v. 21] no. 1, p. 27-31.

Gorodinskiy, S. M. and Parkhomenko, G. M.
OCCUPATIONAL DISEASES, ARISING FROM THE EFFECT OF RADIOACTIVE SUBSTANCES AND RADIATIONS. 13 July 59, 4p. JPRS: L-1763-D.
Order from OTS $0.50 59-11693

Trans. of mono. Gigiyena Truda pri Rabote s Radioaktivnymi Izotopami, Moscow, 1958, p. 14-18.

This article comprises a summary of the symptoms of chronic radiation sickness. The only pathological condition specifically mentioned is radiation cataract.

Khazanov, M. A. and Korenovskaya, A. A.
NEURITIS OF THE FEMORAL NERVE OF RADIOACTIVE GENESIS. 10 Mar 59, 4p.
JPRS: L-672-N.
Order from OTS $0.50 59-13251

Trans. of Sovetskaya Meditsina (USSR) [1958, v. 22] no. 10, p. 116-119.

Case history involving a 44 yr old woman who in the course of her work had been exposed during a 5-yr period to P^{32} and Tl^{114}.

Kholin, V. V.
ACTION OF IONIZING RADIATIONS ON THE COURSE OF PREGNANCY AND ON THE FETUS. [1959] 4p.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3603

Trans. of Klinicheskaya Meditsina (USSR) 1955, v. 33, no. 6, p. 24-27.

Kiryushchenkov, A. P.
PROPHYLAXIS OF RADIATION SICKNESS OF AN INTRAUTERINELY-IRRADIATED FETUS. 11 June 59, 6p. (1 fig. omitted) 4 refs. JPRS: L-804-N.
Order from OTS $0.50 59-13581

Trans. of Meditsinskaya Radiologiya (USSR) 1959 [v. 4] no. 2, p. 10-14.

Korogodin, V. I. and Polikarpov, G. G.
BIOLOGICAL EFFECT OF IONIZING RADIATIONS, AGING PROCESSES AND LIFETIME, tr. by Lydia Venters. Jan 59, 12p. 89 refs.
Order from LC or SLA mi$2. 40, ph$3. 30 AEC-tr-3569

Trans. of Meditsinskaya Radiologiya (USSR) 1958, v. 3, no. 4, p. 79-85.

This survey is based largely on non-Soviet material.

Krut'ko, N. F.
THE EFFECT OF CERTAIN NEUROTROPIC SUBSTANCES ON REGENERATION OF BONE TISSUE IN ACUTE RADIATION SICKNESS. 18 June 59, 2p. JPRS: L-837-N.
Order from OTS $0. 50 59-13644

Trans. of Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya (USSR) 1959, v. 3, no. 1, p. 72.

Seventy rabbits were subjected to total irradiation in total dosage of 1000 r. Of these animals, 52 had a 0.5 cm disk of irradiated bone removed sub-periosteally 1 hr later. Seven animals died in the course of the first 3 to 4 hr after irradiation. Of the remaining animals, 15 were given 0. 2 g sodium bromide/kg body wt/day and 17 received 0. 01 g caffeine/kg body wt daily for 30 days. Sodium bromide showed no positive influence on bone regeneration. Caffeine exerted a positive influence on the course of radiation sickness: there was no increase in the survival rate, and a normalization of the regenerative process in the osseous tissue.

Letavet, A. A.
HYGIENIC PROBLEMS IN RADIOLOGY. 21 July 59, 19p. JPRS: L-877-N.
Order from OTS $0. 50 59-13711

Trans. of Meditsinskaya Radiologiya (USSR) 1957 [v. 2] no. 1, p. 11-22.

Letavet, A. A. and Parkhomenko, G. M.
MEDICAL RADIOLOGY AND PROBLEMS OF HYGIENE. 7 Aug 59, 8p. JPRS: L-1826-D.
Order from OTS $0. 50 59-11757

Trans. of Akademiya Nauk SSSR. Vestnik, 1956 [v. 12] no. 3, p. 77-81.

Novikova, A. P. and Voskresenskiy, S. P.
CONCERNING CERTAIN FEATURES OF THE DEVELOPMENT OF THE PROGENY OF DOGS SUBJECTED TO THE EFFECT OF THE PRODUCTS OF URANIUM FISSION. 9 June 59, 6p. (1 fig. omitted) 6 refs. JPRS: L-807-N.
Order from OTS $0. 50 59-13584

Trans. of Meditsinskaya Radiologiya (USSR) 1959 [v. 4] no. 2 p. 15-19.

Products of uranium fission given to female dogs along with the food in a dose of 1 μc/kg body wt are transmitted to offspring born within 4 yr of administration of the radioactive substances. The development of the offspring of injured dogs is distinguished by retardation of wt gain, and reduced viability up to the age of 6 mo, in spite of the absence of detectable anomalies in organs or systems. The least viable are pups from parents both of which were injured, and the most viable are those from an injured male and a healthy female. The highest mortality occurs in the neonatal period and in the second and third mo of life.

Novikova, R. E.
IRRADIATION OF PERSONNEL DURING DIAGNOSTIC PROCEDURES. 9 July 59, 4p. 3 refs. JPRS: L-1740-D.
Order from OTS $0. 50 59-11680

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1958, v. 33, no. 1, p. 68-71.

Reports by J. F. Loutit, S. B. Osborn, and W. Binks which were presented at the annual meeting (1954) of the British Institute of Radiology are summarized. These papers appeared in Brit. J. Radiol., 28: 1955, 647-661.

Oganezova, A. A.
CHARACTERISTICS OF CHANGES IN THE RATIOS OF BLOOD SERUM PROTEINS IN RATS UNDER THE ACTION OF X-RAYS, AGAINST A BACKGROUND OF VARIED NUTRITION. 20 July 59, 9p. 11 refs. JPRS: L-1778-D.
Order from OTS $0. 50 59-11704

Trans. of Voprosy Pitaniya (USSR) 1958 [v. 17] no. 3, p. 38-43.

Pomerantseva, M. D.
EFFECT OF ANESTHESIA AND NATURAL HIBERNATION ON RADIOSENSITIVITY IN ANIMALS. [1959] 23p. (7 figs. omitted) 26 refs.
Order from LC or SLA mi$2. 70, ph$4. 80 AEC-tr-3611

Trans. of Zhurnal Obshchey Biologii (USSR) 1957, v. 18, no. 3, p. 194-207.

Prokof'yeva-Bel'govskaya, A. A. and Alikhanyan, S. I.
IMPORTANT PROBLEMS OF GENETICS (Vazhnyye Problemy Genetiki). [1959] 5p. Trans. A-1020.
Order from LC or SLA mi$1.80, ph$1.80 59-16815

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1959, v. 29, no. 1, p. 98-100.

The work of the second International Conference on Peaceful Utilization of Atomic Energy (Geneva, 1958) is reviewed.

Razumovskiy, N. O.
CONFERENCE ON THE PROBLEM OF RADIOSTRONTIUM (MOSCOW, DECEMBER, 1958). 8 July 59, 6p. JPRS: L-870-N.
Order from OTS $0. 50 59-13689

Trans. of Meditsinskaya Radiologiya (USSR) 1959 [v. 4] no. 3, p. 92-94.

Sautin, A. L
DOSIMETRY OF WOUNDS AND BURNS CONTAMINATED BY RADIOACTIVE SUBSTANCES. [1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80, AEC-tr-3625

Trans. of Voyenno-Meditsinskiy Zhurnal (USSR) 1957, no. 4, p. 19-21.

Semiglazova, Ye. D.
OCCUPATIONAL DISEASES OF ROENTGENOLOGISTS AND RADIOLOGISTS. 9 July 59, 6p. (2 figs. omitted) JPRS: L-1741-D.
Order from OTS $0.50 59-11681

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1958, v. 33, no. 1, p. 71-75.

Shapiro, F. B.
THE PROTECTIVE ACTION OF HEROIN ON THE EMBRYOS OF WHITE MICE IN TOTAL IRRADIATION OF THE MOTHER. 9 July 59, 6p. 17 refs. JPRS: L-859-N.
Order from OTS $0.50 59-13678

Trans. of Meditsinskaya Radiologiya (USSR) 1959 [v. 4] no. 3, p. 39-42.

Shekhtman, Ya. L.
THE EFFECT OF IONIZING RADIATIONS UPON THE ANIMAL ORGANISM: A SCIENTIFIC CONFERENCE ON THE PROBLEM. 10 Mar 59, 5p. JPRS: L-675-N.
Order from OTS $0.50 59-13254

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958, no. 6, p. 758-760.

Shiffer, I. B.
ON THE PROCESS OF HEALING OF TISSUES INJURED BY X-RAYS. [1959] 9p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3624

Trans. of Meditsinskaya Radiologiya (USSR) 1957, v. 2, no. 4, p. 38-43.

Veksler, Ya. L
CHARACTERISTICS OF THE REACTION OF IRRADIATED ANIMALS TO GENERAL COOLING. 22 June 59, 7p. (1 fig. omitted). JPRS: L-834-N.
Order from OTS $0.50 59-13641

Trans. of Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya (USSR) 1959, v. 3, no. 1, p. 27-29.

CHEMISTRY

JOURNAL OF APPLIED CHEMISTRY OF THE USSR, 1958, VOL. 31, NO. 8, P. 1121-1268. 1959, 1v.
Order from CB $7.50, $60.00/year

Trans. of Zhurnal Prikladnoy Khimii (USSR) 1958, v. 31, no. 8, p. 1129-[1277].

JOURNAL OF GENERAL CHEMISTRY OF THE USSR, 1958, VOL. 28, NO. 6, P. 1475-1758. 1959, 1v.
Order from CB $10.00, $90.00/year

Trans. of Zhurnal Obshchey Khimii (USSR) 1958, v. 28, no. 6, p. 1421-[1709].

Vol'fkovich, S. I.
CHEMISTRY ON NEW HORIZONS. 27 July 59, 4p. JPRS: L-880-N.
Order from OTS $0.50 59-13742

Trans. from Krasnaya Zvezda (USSR) 1959, no. 117, p. 3.

Analytical Chemistry

Shulek, E.
ABOUT THE ANALYSIS OF FORMALDEHYDE. [1959] 9p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-15480

Trans. of Chemische Berichte (West Germany) 1925, v. 58 [no. 4] p. 732-736.

Two methods for the analysis of formaldehyde based on the Romijn reaction are presented. These are the argentometric and the iodometric methods.

Vdovenko, V. M. and Lazarev, L. N.
EXTRACTION OF URANIUM IN THE FORM OF ANILINE URANYL TRIACETATE, tr. by A. L. Monks. 4 Mar 59, 13p. 4 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3598

Trans. of Zhurn[al] Neorgan[icheskoy] Khim[ii] (USSR) 1958, v. 3 [no. 1] p. 155-159.

The possibility of extracting uranyl acetate by aniline is shown. The transition of uranium into the organic phase is due to the formation of aniline uranyl tri-acetate. Aniline uranyl tri-acetate is obtained and its chemical composition was studied.

Hager, Werner.
DETERMINATION OF THE OIL CONTENT IN PARAFFINS AND PARAFFIN SLACK WAXES. [1959] 8p. T-516.
Order from SLA mi$1.80, ph$1.80 59-17060

Trans. of Chem[ische] Tech[nik] (East Germany) 1958, v. 10, [no. 6] p. 351-353.

The ASTM method D 721-47 (used in the U. S. since 1947), the Webau-Gerstewitzer or alcohol-acetone method, and the acetone method are described. Their fields of application are defined on the basis of a series of examples and the conversion factors are determined. On the basis of the results, it is recommended that future determinations be carried out by the ASTM method.

Schuhknecht, W. and Schinkel, H.
EXPLANATION OF THE VAPORIZATION, DECOMPOSITION AND EXCITATION PROCESSES IN FLAMES. THE INFLUENCE OF ALUMINUM, SILICIC ACID AND PHOSPHORIC ACID ON THE FLAME PHOTOMETRIC DETERMINATION OF ALKALINE EARTHS. [1959] 14p. 16 refs. T-532.
Order from SLA mi$2.40, ph$3.30 59-17056

Trans. of Z[eitschrift für] Anal[ytische] Chem[ie] (West Germany) 1958, v. 162 [no. 4] p. 266-279.

Previous experiments by C. T. J. Alkemade and M. E. Jeuken (Z. anal. Chem. 158: 401, 1957) and L. Huldt (dissertation, Uppsala, 1948) were repeated. The behavior of silicic acid and phosphoric acid was tested and the extent of the disturbing effect was determined for various fuel gases or atomizing burners. Results indicated that the disturbance of the calcium emission by aluminum compounds cannot be interpreted as a true excitation influencing, but by assuming a vaporization blocking by the formation of difficultly volatile or poor heat-conducting compounds. The formation of these compounds does not take place in the gas phase, but they are formed in the flame directly from the solid or liquid particles of the aerosol. The influencing of the calcium emission by silicic acid and phosphoric acid is also the result of a vaporization blocking. The temperature reached by the particles depends upon the residence time in the flame as well as on the flame temperature.

JOURNAL OF ANALYTICAL CHEMISTRY OF THE USSR, 1958, VOL. 13, NO. 5, P. 569-706. 1959, 1v.
Order from CB $20.00, $80.00/year

Trans. of Zhurnal Analiticheskoy Khimii (USSR) 1958, v. 13, no. 5, p. 507-[622].

Inorganic Chemistry

Lobanov, N. I.
ON THE COMPOUNDS OF QUADRIVALENT CHROMIUM. [1959] 3p. 22 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17228

Trans. of Zhurn[al] Neorganicheskoy Khimii (USSR) 1956, v. 1, no. 1, p. 24-26.

Yoshii, Toyofujimaru and Sudo, Giichi.
PROPERTIES AND FORMS OF CALCIUM SILICATE HYDRATE. [1959] [25]p. 17 refs.
Order from SLA mi$2.70, ph$4.80 59-15073

Trans. of Semento Gijutsu Nenpō (Japan) 1957, no. 11, p. 48-54.

The properties and forms of calcium silicate hydrate were studied at 35°C. The methods employed were the direct synthesis method (i. e., synthesis from a mixture of SiO_2 and CaO in the presence of water) and the precipitation method (i. e., double decomposition of $Ca(NO_3)_2$ and sodium silicate, and precipitation from a (per) saturated calcium solution and a solution of sodium silicate). The reaction between CaO and SiO_2 is almost completed in a period of from 30 to 35 days in the presence of water. From then on, CSH(B) pursues the course for further development in form. The molar ratio between the CaO and SiO_2 of the CSH(B) which was obtained varies from 0. 89 to 1. 41 and assumes such forms as fiber, needles, flakes or plates. All the forms have the same crystallization structure, although the arrangements of the crystallites are different. Some kinds of the needle shaped crystals are believed to be flaky crystals which became curled up. This is assumed to be a secondary transformation due to shrinkage within the electron microscope, judging from the electron diffractions. In the hydration of commercial Portland cement the formation of CSH(B) or C_2SH_2 has been observed by both X-ray and an electron microscope. It is believed that the mechanism with which this participates in strengthening of the hardened paste or cement lies in many cases in the formation of a fibrous or needle shaped meshwork, judging from the synthesis of pure chemicals.

Zvonkova, Z. V.
THE NATURE OF DONOR-ACCEPTOR BONDS IN COMPLEX COMPOUNDS STUDIED FROM THE ASPECT OF CRYSTAL CHEMISTRY. [1959] 30p. 45 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-15727

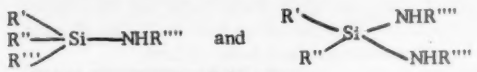
Trans. of Zhurnal Neorgan[icheskoy] Khimii (USSR) 1957, v. 2, no. 10, p. 2334-2345.

Organic Chemistry

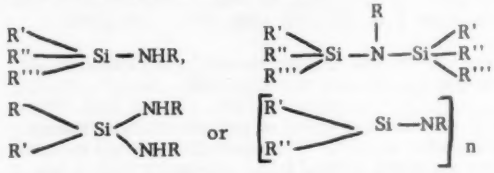
Larson, E.
PROCEDURE FOR PREPARING SILICON-ORGANIC COMPOUNDS [1959] [5]p.
Order from LC or SLA mi$1.80, ph$1.80 59-17293

Trans. of Swedish Patent 130374, cl. 12 o:/03, granted 19 Oct 50, patent running from 28 Feb 49, pub. 19 Dec 50, registered 28 Feb 49 (no. 1755/1949) by Uddeholms Aktiebolag (Sweden)

A procedure is presented for preparing silicon-organic compounds belonging to types



in which compounds of the types



where R, R', R'', R''' and R'''' are hydrocarbon radicals, substituted hydrocarbon radicals of hydrogen atoms, interact with amines of the type $R''''NH_2$. The reaction takes place under conditions of elevated temperature so adjusted that the formed amine belonging to type RNH_2 is eliminated from the reaction mixture. The removal of the formed amine RNH_2 proceeds continuously.

Lemetre, G. [Martello, V., and Nobile-Orazio, G.].
POLYMERIZATION OF ETHYLENE ON METALLIC CESIUM AND RUBIDIUM. [1959] [13]p. 5 refs.
Order from SLA mi$2.40, ph$3.30 59-15986

Partial trans. of la Chimica e l'Industria (Italy) 1958, v. 40, p. 470-475.

Experiments are summarized which indicate that the polymerization of ethylene on catalysts formed from cesium or rubidium metal deposited on steel wool, aluminum wool, sintered copper, under the conditions shown gives rise to very branched products which in every case only with difficulty contain more than 6 --CH-CH-- groups. The octenes obtained were tested as high octane number fuels, as and after hydrogenation even neglecting the high costs they did not give results which predict a possible industrial use.

Lenard-Borecka, B[arbara] and Michalski, J[an].
ORGANOPHOSPHORUS COMPOUNDS OF SULFUR AND SELENIUM. VII. DIALKOXYPHOSPHINYLSULFENYL CHLORIDES. 22 Jan 59, [10]p. 10 refs.
Order from SLA mi$1.80, ph$1.80 59-15301

Trans. of Roczniki Chem[ii] (Poland) 1957, v. 31, [no. 4] p. 1167-1176.

$(C_2H_5O)_2P(O)SCl$, $(C_3H_7O)_2P(O)SCl$, and $(C_4H_9O)_2P(O)SCl$ were prepared from O, O-Dialkylmonothiophophoric acids with yield almost equal to theory. The mechanism of these reactions and the chemical properties of the products are discussed.

Midzhoyan, A. L., ed.
SYNTHESES OF HETEROCYCLIC COMPOUNDS, VOLS. 1 AND 2. Aug 59.
Order from CB $6.00

Trans. of mono. [Sintezy Geterotsiklicheskikh Soyedinenii, Yerevan, 1956, v. 1 and 2].

A practical guide to the laboratory preparation of heterocyclic compounds is furnished by this series of collections of synthesis methods, originally published by the Armenian Academy of Sciences. The present volumes are devoted exclusively to the synthesis of furan derivatives.

Natta, G., Valvassori, A. and others.
COPOLYMERIZATION OF ETHYLENE WITH ALIPHATIC α-OLEFINS. REPT. V. COPOLYMERIZATION OF ETHYLENE-PROPYLENE WITH CATALYSTS PREPARED FROM TITANIUM HALIDES. [1959] 25p. 8 refs.
Order from SLA mi$2.70, ph$4.80 59-17265

Trans. of [1a] Chimica e l'Industria (Italy) 1958, v. 40, no. 11, p. 896-905.
Other translations are available from SLA mi$2.70, ph$4.80 as 59-15120 [1959] 25p. and from ATS $18.40 as ATS-63K28I, 17p.

Linear ethylene-propylene amorphous copolymers of high molecular weight, free of homopolymers and of crystalline copolymers were obtained by using catalysts prepared from trihexylaluminum with $TiCl_4$, $TiCl_3$, and $TiCl_2$. Detailed descriptions are given of the copolymerization with the various catalysts. Methods of analysis, chemical-physical examinations and many of the products and reagents used were the same as previously described (Chimica e indistria 39: 733, 1957). The effects are tabulated of various parameters connected with the preparation of the catalyst on the composition of the copolymers. The composition of the copolymers differs from that of the circulating monomer mixture to an even greater extent than what was observed previously (59-12592 and 59-12669) for the catalysts obtained from $VOCl_3$ and VCl_4.

Natta, G., Pasquon, I., and Giachetti, E.
THE KINETICS OF THE STEREOSPECIFIC POLYMERIZATION OF PROPYLENES TO ISOTACTIC POLYMERS. [1959] 15p. 34 refs.
Order from SLA mi$2.40, ph$3.30 59-15929

Trans. of Angewandte Chemie (West Germany) 1957, v. 69, no. 7, p. 213-244.

The kinetic measurement of the polymerization was carried out using catalysts obtained by the treatment of crystalline $TiCl_3$ with $Al(C_2H_5)_3$. The rate of the reaction is a linear function of the amount of $TiCl_3$ and of the propylene partial pressure. The final rate of the reaction remains constant for over 30 hrs with a low concentration of the catalysts. The activation energy of the whole process lies at 12,000 - 14,000 kcal/kmol, a value which is lower than most radical activated polymerization processes. The number of active centers produced by the reciprocal action of aluminum triethyl and titanium trichloride surfaces does not vary noticeably with time, in the case where the catalysts has reached the final state. Consequently, the pure catalytic and heterogenic nature of the high grade stereospecific polymerization process which uses crystallized $TiCl_3$ and an aluminum trialkyl as catalysts, is confirmed.

Natta, G. and Danusso, F.
STEREOSPECIFIC POLYMERIZATION OF STYRENE. I. INFORMATION AND PROBLEMS OF CRYSTALLINE POLYSTYRENES. [1959] 14p. 19 refs.
Order from SLA mi$2.40, ph$3.30 59-17209

Trans. of la Chimica e l'Industria (Italy) 1958, v. 40, no. 6, p. 445-450.

A preliminary study was made of the possible approaches to the group of polymers obtainable by stereospecific polymerization of styrene and, generally, of aryl-substituted vinyl monomers. Heretofore, stereospecific polymerization of styrene has been realized only with the aid of catalysts with coordinated anionic mechanism. Alfinic catalysts also belong to this group although they yield polystyrenes which are sterically less regular and are difficult to crystallize. Readily crystallizable polystyrenes with a high degree of crystallinity, however, are obtained with catalysts containing a transition element, a strongly electropositive element with a small ionic radius and metal organic bonds. Although the catalysts, in this case, are highly stereospecific, the high degree of crystallinity observed in polypropylenes or in polymers of other cycloalkyl or aryl-substituted monomers is not obtained. The possible causes of physical order in crystallization or of chemical order in polymerization are examined and discussed in a systematic investigation of the problem. (See also 59-15514)

Nicolas, M. Louis.
STUDY OF "HIGH PRESSURE" POLYETHYLENES BY DIFFUSION OF LIGHT. [1959] 3p. 4 refs.
Order from SLA mi$1.80, ph$1.80 59-15926

Trans. of [Academie des Sciences, Paris]. Comptes Rendus (France) 1957, v. 244, no. 1, p. 80-82.

The molecular masses at five polyethylenes (C_nH_{2n}) were measured by diffusion of light in febraline and in γ-chloro-naphthalene at different temperatures. Agreement of the data from the tests indicates that the amount of long chain branching increases with the molecular mass and that the relative spread of the distribution of the radio of gyration diminishes when the distribution of the molecular masses increases.

Palomaa, M. H.
ON THE DISSOCIATION CONSTANTS OF ALIPHATIC OXY AND ALKOXY ACIDS. [1927] 2p. 1 ref.
Order from SLA mi$1.80, ph$1.80 59-10709

Trans. of abstract (Chemisches Zentralblatt (Germany) 1912, v. 83, p. 595-597) of Academiae Scientiarum Fennicae. Annales. Ser[ies] A. (Finland) 1911, v. 3, no. 2, p. 1-34.

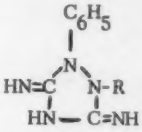
Palomaa, M. H.
STUDIES ON ETHER-LIKE COMPOUNDS. II. Ether-Alcohols of the Type RO.CH_2.C(H)R'2. [1958] 1p. 2 refs.
Order from SLA mi$1.80, ph$1.80 59-10710

Trans. of abstract (Chemisches Zentralblatt (Germany) 1918, v. 89, p. 1144-1145) of Academiae Scientiarum Fennicae. Annales. Ser[ies] A. (Finland) 1918, v. 10, no. 17, p. 1-5.

Papini, Piero.
DERIVATIVES OF PHENYLGAUNAZOLE. NOTE 3 (Sopra Alcuni Derivati del Fenilguanazolo. Nota III). 7 Apr 55, 6p.
Order from SLA mi$1.80, ph$1.80 59-17038

Partial trans. (p. 859-863) of Gazzetta Chimica Italiana, 1950, v. 80 [no. 11/12] p. 855-[863].

Phenylguanazole derivatives of the form



were obtained. The heating of phenylguanazole, R= -H, with chloral hydrate in water led to the formation of the chloral derivative, R= $-HC(OH)CCl_2$, which, when treated with soda, yielded the formyl derivative, R= -CHO. Oxalic and malonic acids gave different reaction products depending upon the initial proportions of (1) R = $-COCOOC_2H_5$ and R = $-COCH_2COOC_2H_5$, or (2) two molecules combined about R with R= -COCO- or $-COCH_2CO-$. These four compounds were readily hydrolyzed in both acid and alkaline media into phenylguanazole and the acid of the ester previously employed. A reaction with diphenylformamidine produced anilinemethylenephenylguanazole, R = $-CH=NC_6H_5$, which is more stable than the others. Urea and diphenylurea, when heated with phenylguanazole at 160° to 170° C yield phenylguanazolecarbamide and phenylguanazolecarbanilide, R = $-CONH_2$ and R = $-COHHC_6H_5$.

Pasquon, I., Giachetti, E. and Giuffrè, L.
CHARACTERISTICS OF THE $VOCl_3$-$Al[CH_2CH(CH_3)_2]_3$ CATALYST SYSTEM. Article I on Anionic Coordinated Polymerization of Propylene to High Molecular Weight Atactic Polymers and Stereoblocks. [1959] 15p. 27 refs.
Order from SLA mi$2.40, ph$3.30 59-17205

Trans. of la Chimica e l'Industria (Italy) 1959, v. 41 [no. 4] p. 281-286.

The activity of the catalyst is influenced by the Al/V ratio with which it has been prepared and by the modality and order by which the reagents are brought together. Also reported are some results obtained by the chemical and roentgenographical analysis of the catalyst.

Patsevich, I. V., Topchiyev, A. V., and Shtern, V. Ya.
THE REACTION OF ALKYL RADICALS WITH NITROGEN DIOXIDE. 11 Mar 59 [9]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15508

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 123 [no. 4] p. 696-699.

The vapor-phase nitraction of alkanes was performed at room temperature to check the forming of nitro compounds and alkyl nitrites. The presence of alkyl nitrite was confirmed which contradicts Gray's idea (Trans. Farady Soc. 51: 1367, 1955) of the decomposition of the nitrite at the moment of its formation from R and NO_2. Apparently it is possible to have a distribution of the excess bond energy (without bond rupture) and its dissipation by subsequent deactivating collisions.

Prilutskiy, G. M.
A SIMPLE METHOD OF OBTAINING 9-ACETYL-9, 10-DIHYDRO-PHENAZINE AND 9, 10-DIACETYL-9, 10-DIHYDROPHENAZINE tr. by P. DePort.
27 Mar 59, 5p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14629

Trans. of Ukrainskiy Khimicheskiy Zhurnal (USSR) 1958, v. 24, no. 4, p. 489-490.

The phenazine is reduced with zinc dust in a boiling mixture of acetic anhydride and glacial acetic acid. By this method, diacetyldihydrophenazine is obtained with a 95% yield. The end of the reduction is marked clearly by the decolorization of the reaction mixture. When the reduction reaction is performed at room temperature, monoacetyldihydrophenazine is obtained with a yield of 96%.

Schlenk, W., Jr.
THE UREA ADDITION OF ALIPHATIC COMPOUNDS.
[1959] 57p. (28 figs. omitted) 5 refs.
Order from SLA mi$3.60, ph$9.30 59-17162

Trans. of unidentified mono. from Oppau Ammonia Laboratory of BASF, Ludwigshafen.

Discussions are presented on preparation and general properties of the new urea addition compounds; the types of organic compounds which undergo urea addition; the mass ratio of the components; the structure of urea addition compounds of the type cetane-urea; the density of the urea addition compounds; the lattice energy of the urea addition; significance of the chain length for formation and stability of the products; urea addition compounds which do not belong to the "urea-cetane type" (CO, CO' dihalogen compounds and dicarboxylic acids); other compounds with end bifunctional groups which produce special lattice structures; and dissociation of urea addition products. The preparation of heptane-, octane, nonane-, decane-, undecane-, dodecane-, cetane-, tetraeicosane-, octaeicosane-, 1-octent-, 1-decene-, and n-octadecylbenzene-urea is described along with the experiments which were used to study the additions.

Schwarzenbach, G. and Heller, J.
COMPLEXONES XVIII. IRON II- AND IRON III-COMPLEXES OF EDTA AND THEIR EQUILIBRIUM
[tr. by] E. Van Ryzin. 17 Feb 59, 12p. (6 figs. 2 tables, 1 illus. omitted).
Order from SLA mi$2.40, ph$3.30 59-15666

Trans. of Helvetica Chimica Acta (Switzerland) 1951, v. 30, p. 576-591.

Sergeyev, P. G., Bukreyeva, L. M. and Polkovnikova, A. G.
ISOMERIZATION OF PROPYLENE OXIDE (K Voprosu ob Izomerizatsii Okisi Propilena). 6 Jan 59. [4]p. 10 refs. AF 1255402.
Order from LC or SLA mi$1.80, ph$1.80 59-16409

Trans. of Khimicheskaya Nauka i Promyshlennost' (USSR) 1957, v. 2, no. 1, p. 133

Staudinger, Hermann.
POLYOXYMETHYLENE, A MODEL OF CELLULOSE, B. POLYETHYL OXIDE, A MODEL OF STARCH, C. ed. by W. Kern and H. Lohmann. Communication nos. 64 & 65 on High Polymers. [1959] 223p. (figs. and illus. omitted) 160 refs.
Order from SLA mi$9.90, ph$34.80 59-15984

Trans. of mono. die Hochmolekularen Organischen Verbindungen-Kautschuk und Cellulose, Berlin, 1932 [p. 224-332].

Polyoxymethylene, a model of cellulose
Topics discussed include: (1) the preparation and separation of polymer-homogeneous polyoxymethylenes into chemical individuals or fractions, and a proof of structure by analysis and molecular weight determinations; (2) polyoxymethylene dimethyl ether from γ-polyoxymethylene; (3) the polyoxymethylene-dihydrates; and (4) polyoxymethylene from liquid, monomeric formaldehyde: eupolyoxymethylene.
Polyethyl oxide, a model of starch
Topics discussed are entitled: (1) synopsis of results; (2) polymerization of ethylene oxide; (3) properties of polyethylene oxide; (4) clarification of the structure of polyethylene oxides; (5) viscosity investigations; and (6) viscosity and molecular weight.

Stoll, M. and Rouve, A.
STUDIES ON THE DECOMPOSITION OF SALTS OF POLYMETHYLENE α,ω-DICARBOXYLIC ACIDS. Contribution 36 to the Study of Carbocyclic Compounds. [1959] 23p. 17 refs.
Order from SLA mi$2.70, ph$4.80 59-15932

Trans. of Helv[etica] Chim[ica] Acta (Switzerland) 1944, v. 27 [no. 5] p. 1570-1583.

Ziegler, Karl, Köster, R. and Kroll, W. R.
PROCESS FOR THE PRODUCTION OF HIGHER MOLECULAR WEIGHT BORON ALKYLS FROM LOWER MOLECULAR WEIGHT BORON ALKYLS.
[1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80 59-17236

Trans. of German specification 1,055,534 (St 13344 IV b/12o) filed 13 Jan 58, laid open to public inspection 23 Apr 59, by Karl Ziegler.

Physical Chemistry

Bikson, Ya. M.
SORPTION DYNAMICS OF TWO COMPONENTS OF A MIXTURE. 25 May 59, 13p. 14 refs. JPRS: L-777-N.
Order from OTS $0.50 59-13509

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1954, v. 28, no. 6, p. 1017-1024.

The existence of an asymptotic solution of differential equations of sorption dynamics of two components of a mixture was proven, which corresponds to the establishment of a regime of parallel transfer. An approximate calculation was made of the distribution of concentrations of sorbed substances along the mixture after the establishment of a regime of parallel transfer. A method was suggested for determining the length of the working layer of the sorbent for that case.

Brockmann, Hans and Meyer, Ernst.
THE DETERMINATION OF EQUIVALENT AND MOLECULAR WEIGHT BY POTENTIOMETRIC MICROTITRATION IN NON-AQUEOUS SOLVENTS, tr. by F. Hudswell. Aug 55 [15]p. 16 refs. AERE Lib/Trans 528.
Order from SLA mi$2.40, ph$3.30 59-17349

Partial trans. (p. 1514-1522) of Chemische Berichte (West Germany) 1953, v. 86, no. 12, p. 1514-1523.

Corradini, Paolo.
THE RESONANCE ENERGY OF POLYACETYLENE. 22 June 59, [6]p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-17072

Trans. of Accad[emia] Naz[ionale dei] Lincei. Classe [di] Sci[enze] Fiz[iche] Mat[ematiche] e Nat[urali]. Rend[iconti] (Italy) 1958 [ser. 8] v. 25 [no. 6] p. 517-519.

Deryagin, B. and Vlasenko, G.
THE FLOW METHOD OF ULTRAMICROSCOPE MEASUREMENT OF THE PARTICLE CONCENTRATION OF AEROSOLS AND OTHER DISPERSION SYSTEMS. [1959] 6p. (2 figs. omitted) 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17171

Trans. of [Akademiya Nauk SSSR. Doklady] 1948, v. 63, no. 2, p. 155-158.

A method is suggested for making a particle count in a continuous stream of aerosol flowing in a direction parallel to the line of sight, with the particles traversing a zone of illumination in a set time. If the total observed number of the little flashes in the field of view made by particles crossing the zone of illumination is divided by the volume of the aerosol flowing over the field, the particle concentration is obtained.

Fridkin, V. M.
THEORY OF THE FORMATION OF THE LATENT ELECTROPHOTOGRAPHIC IMAGE AND THE RECIPROCITY LAW. [1959] 7p. 5 refs. T-3015.
Order from LC or SLA mi$1.80, ph$1.80 59-15180

Trans. of Akademiya Nauk SSSR, Doklady, 1958, v. 121, no. 4, p. 627-630.

The solution of a system of differential equations, describing the electron transitions in the zonal band model corresponding to the scheme of the energy levels of electrons of a definite crystal, forms the basis of the present investigation. Calculations are based on the scheme of electron energy levels in the sulfur single crystal suggested by P. S. Tartakovskii and G. Rekalova (Zhur. Eksp. i Teoret. Fiz. 10: 1025, 1940).

Grechnnyy, Ya. V.
THE PROBABILITY OF FORMATION OF CRYSTALLINE NUCLEI IN BINARY MELTS OF THE EUTECTIC TYPE. 15 June 59, 9p. 6 refs. JPRS: L-1722-D.
Order from OTS $0.50 59-11657

Trans. of Akademiya Nauk SSSR. Doklady, 1952, v. 84, no. 1, p. 89-92.

Héros, M[arguerite] and Héros, R[ené].
FLUORESCENCE--PROPERTIES, APPLICATIONS, tr. by C. A. Horton. [1958] 15p. (2 figs. omitted) 22 refs.
Order from SLA mi$2.40, ph$3.30 AEC tr-2010

Trans. of [Chimie Analytique] (France) 1942, v. 24, no. 4, p. 118-121 and 137-139.

Hine, Fumio.
THE CASE FOR NICKEL SURFACE. Rept. no. 1 on Electrolytic Polishing by Alternating Current. 12 July 56, 13p. (12 figs. omitted) 11 refs.
Order from SLA mi$2.40, ph$3.30 59-17183

Trans. of Denki Kagaku (Japan) 1948, v. 16, no. 1/4, p. 23-27.

A method is described for the electrolytic polishing of nickel, with alternating current, in a solution in which γ-Al_2O_3 is formed. The electrodes are flat aluminum sheets of 99.8% purity, and the electrolysis solution contains 60 to 75% aqueous H_2SO_4 and 10 to 15% glycerin. During the 5 to 15 min working period the current density is about 10 A/dm^{-2} (sic) and the temperature is maintained between 40° and 45°C. Below 5°C the luster of the finished surface is dull and above 50°C the active layer of γ-Al_2O_3 dissolves.

Holfferich, F.
PRESENT DAY PROBLEMS OF ION-EXCHANGE, tr. by R. S. Forsyth. 1955 [7]p. 35 refs. A. E. R. E. Lib/Trans. 530.
Order from SLA mi$1.80, ph$1.80 59-17351

Trans. of Angewandte Chemie (West Germany) 1955, v. 67, no. 1, p. 13-16.

Ioffe, I. I.
CHAIN OXIDATION OF PHENOL. [1959] [15]p. 6 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15232

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1954, v. 28, no. 5, p. 772-779.

The reaction of the vapor-phase thermal oxidation of phenol was investigated in a stream of O_2 and N_2. The course of reaction in the initial period corresponds to the equation of chain reactions $\mathcal{E}$ = Ne of N. N. Semenov. A considerable portion of the converted phenol does not burn but undergoes an oxidizing condensation. The reaction on a quartz surface is marked by the inhibition of the space chain and of the catalyzing surface reaction of complete oxidation. A mechanism is proposed for the reaction with the participation of oxyphenyl radicals.

Khvostenko, V. I. and Dukel'skiy, V. M.
THE FORMATION OF NEGATIVE H^- IONS DURING ELECTRON COLLISIONS WITH HYDROGEN MOLECULES. [1959] [5]p. 6 refs. A. C. S. I. L. Trans. no. 1056.
Order from LC or SLA mi$1.80, ph$1.80 59-17154

Trans. of *Zhur[nal] Eksper[imental'noy] i Teor[eticheskoy] Fiziki (USSR) 1957, v. 33 [no. 4(10)] p. 851-855.

Experiments carried out in a glass mass spectrometer with no ground joints or substantial metal parts showed that H ions result from collisions between electrons and H_2 molecules. The curve showing the H^- ion yield as a function of the electron energy displays a narrow maximum at 14.5 ev which is attributed to resonance capture of electrons by H_2 molecules. The formation of H^- ions at greater electron energies probably occurs as a result of the dissociation of H_2 molecules into positive and negative ions.

Matuura, Sinnosuke.
DIFFUSION OF MIXTURES OF TWO ELECTROLYTES. Rept. no. 2 on Diffusion of Electrolytes in Agar Gels. [1959] 3p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-17086

Trans. of Nihon Kagaku Zasshi (Japan) 1937, v. 58, no. 8, p. 824-825.

Diffusion velocities of mixtures of potassium chloride and potassium sulfate through agar gels were measured. It was found that the diffusion velocity of the substance whose diffusion velocity was large was accelerated by the presence of one whose diffusion velocity was small, and that the diffusion velocity of one whose diffusion velocity was small was suppressed by the presence of one whose diffusion velocity was large. (See also 59-17085)

Matuura, Sinnosuke.
VELOCITY OF DIFFUSION OF A SINGLE ELECTROLYTE. Rept. no. 1 on Diffusion of Electrolytes in Agar Gels. [1959] 11p. 11 refs.
Order from SLA mi$2.40, ph$3.30 59-17085

Trans. of Nihon Kagaku Zasshi (Japan) 1937, v. 58, no. 8, p. 819-823.

The diffusion velocities of potassium chloride, lithium chloride, and potassium sulfate in agar gel were measured at 10°~ 20°C. The diffusion velocity of the electrolyte did not depend on the concentration of the agar gel, but increased with temperature rise. (See also 59-17086)

Nikolayev, N. S. and Tanayev, I. V.
THE ACTIVITY OF SOLUTION COMPONENTS IN LIQUID HYDROGEN FLUORIDE. REPT. 1. REPT. 2: THE ACTIVITY OF FLUORIDES OF THE ALKALI METALS IN LIQUID HYDROGEN FLUORIDE. REPT. 3: THE ACTIVITY OF HYDROGEN FLUORIDE IN SOLUTIONS OF AMMONIUM BASES. [1959] [42]p. 33 refs.
Order from LC or SLA mi$3.30, ph$7.80 AEC-tr-1996

Trans. of [Akademiya Nauk SSSR. Sektor Fiziko-khimicheskogo. Izvestiya] [1950] v. 20, p. 184-211.

Rept. I: The activity functions for liquid hydrogen fluoride were calculated in a form usable for cyroscopic and ebullioscopic data. A dynamic method of ebullioscopic observation was developed and used for solutions of potassium, sodium, and lithium fluorides. The activity coefficients of hydrogen fluoride were calculated for solutions of potassium fluoride from cryoscopic and ebullioscopic data. Satisfactory coincidence was secured. The nature of the relationship between the activity coefficient of hydrogen fluoride and the concentration of the dissolved fluoride was established. The solutions ceased to boil at atmospheric pressure at compositions of $KF \cdot 5HF$, $NaF \cdot 10HF$, and $LiF \cdot 20HF$. After a certain concentration is reached, further dissolution apparently involves subdivision of the polymers of hydrogen fluoride. Rept. II: The activity coefficients of potassium, sodium, and lithium fluoride dissolved in liquid hydrogen fluoride were established. The general patterns of behavior were established for the activity coefficient in the series of alkali metals. Rept. III: Ebullioscopic measurements were made of the following systems: NH_3-HF; $C_6H_5NH_2$-HF; CH_3NH_2-HF; and $(C_6H_5)_2NH$-HF. Calculations were made of the activity, the activity coefficients, and the molecular increases of the boiling points for these systems. The ultimate compositions, above which the observational and calculation methods are no longer applicable, were discovered for these systems. Results of calculations of activity coefficients indicate that they are fourth-degree functions of concentration.

Palomaa, M. H.
THE INFLUENCE OF THE POSITION OF THE OXYGEN ATOM IN THE CHAIN ON THE VELOCITY OF ETHER HYDROLYSIS. [1958] [8]p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-10711

Trans. of abstract (Chemisches Zentralblatt (Germany) 1913, v. 84, p. 1956-1960) of Academiae Scientarium Fennicae. Annales. Ser[ies] A (Finland) 1913, v. 4, no. 3, p. 1-104.

Philipp, Burkart.
POTENTIOMETRIC INVESTIGATIONS OF VISCOSE SOLUTIONS. II. COMMUNICATION ON THE ANALYTICS OF VISCOSE (Potentiometrische Untersuchungen an Viskoselösungen. II. Mitteilung zur Viskoseanalytik). 15 July 55 [25]p. (8 figs. omitted) 13 refs.
Order from SLA mi$2.70, ph$4.80 59-17023

Trans. of Faserforschung und Textiltechnik (Germany) 1954, v. 5, no. 8, p. 337-347.

Renker, Wolfgang.
HEAT TRANSFER IN THE CONDENSATION OF VAPORS WITH NONCONDENSABLE GASES PRESENT. [1958] 51p. 8 refs. GAT-Z-4060.
Order from SLA mi$3.60, ph$9.30 59-10546

Trans. of Technische Hochschule, Dresden. Wissenschaftliche Zeitschrift (East Germany) 1954/55, v. 4 [no. 6] p. 1003-1019.

An investigation was made of the influence of gas content upon heat transfer in the condensation of vapors from vapor-gas mixtures. The vapors employed were steam and isobutyl alcohol vapor, and the gases were hydrogen, air, and nitrogen. The measurements indicated that the high coefficients of the heat transfer for pure vapors drop very sharply even when minute quantities of gas are added. The lower the flow velocity, the more pronounced was this effect because at low velocities the transfer resistance within the diffusional boundary layer is much greater than at high velocities. In the isobutyl alcohol vapor-gas mixtures, the decrease in the coefficient of heat transfer was not so marked because the coefficient of heat transfer for the condensation of pure isobutyl alcohol vapor is considerably lower than that of steam. It was found that the nature of the gas added to the vapor is not of essential importance, the major factor is the amount of gas added to the vapor. The experimentally determined coefficients of heat transfer were used to calculate the thicknesses of the diffusional boundary layer.

Rösch, M.
AN ATTEMPT AT A VALENCE-THEORETICAL BASIS FOR THE FINE STRUCTURAL BEHAVIOR OF POLYGLYCOL ETHERS. [1959] 9p. (2 figs. 3 diagr. omitted) 1 ref.
Order from SLA mi$1.80, ph$1.80 59-15949

Trans. of Kolloid-Zeitschrift (West Germany) 1957, v. 150, no. 2, p. 153-156.

Schilling, P. O. and Lochte-Holtgreven, W.
MAGNETIC FIELDS IN TURBULENT PLASMAS, tr. by R. J. Richardson. 1955 [13]p. (figs. 1, 2, and 3 omitted) 7 refs. AERE Lib/Trans. 533.
Order from SLA mi$2.40, ph$3.30 59-17354

Trans. of Zeitschrift für Naturforschung (West Germany) 1954, v. 9a, no. 6, p. 520-526.

The Biermann-Schlüter theory (Z. Naturforsch. 5a: 65 and 237, 1950) is shown to describe the relationships in the turbulent plasma with good accuracy. The first experimental proof was obtained of magnetic fields which are brought about by turbulent flow of a plasma.

Schüler, Hermann.
ORGANIC MOLECULES IN THE GLOW DISCHARGE (Organische Molekule in der Glimmentladung). [1958] [14]p. (3 figs. omitted). Tr57-89.
Order from SLA mi$2.40, ph$3.30 59-10658

Trans. of Max-Planck-Gesellschaft [zur Forderung der Wissenschaften]. Jahrbuch (West Germany) 1954, p. 178-192.

A description is given of a glow discharge tube used for the study of polyatomic organic compounds. Results of its use on molecules containing a benzene ring are described and reasons are given for the observed phenomena, in particular the OH^- radical. Future possibilities are mentioned.

Schulz, G. V. and Kuhn, W. H.
KINETICS OF THE ESTABLISHMENT OF EQUILIBRIUM IN AN OSMOMETER. I. [1959] 4p.
Order from ATS $6.00 ATS-04L32G

Trans. of Makromol[ekulare] Chem[ie] (Switzerland) 1959, v. 29, p. 220-225.

Vol'kenshteyn, F. F.
TWO TYPES OF HOMOPOLAR BONDS IN CHEMICAL ADSORPTION. 25 May 59, 16p. (figs. omitted) 8 refs. JPRS: L-791-N.
Order from OTS $0.50 59-13535

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1954, v. 28, no. 3, p. 422-432.

Wolf, K. Lothar.
ON AN INCANDESCENT-CATHODE VACUUM DISCHARGE IN GASES AND METALLIC VAPOUR, PARTICULARLY IRON VAPOUR, AND ITS APPLICABILITY IN SPECTROSCOPY, tr. by J. B. Sykes. 1955 [15]p. (tables omitted) 21 refs. A. E. R. E. Lib/Trans. 514.
Order from SLA mi$2.40, ph$3.30 59-17338

Trans. of Zeitschrift für Physik (Germany) 1927, v. 44, p. 170-189.

An electric discharge is proposed for gases and the vapours of not easily fusible metals, which is free from the defects common to arc discharges. Owing to the extreme constancy of all the conditions, the purity of the spectra, and the sharpness of the lines, this discharge appears suitable for a more exact determination of secondary wavelength standards. Among its further possibilities of application, besides pressure broadening and pressure displacement of spectral lines, the particular behaviour of individual groups of lines compared with the arc is illustrated by means of the iron spectrum; this behaviour might be of use for the arrangement of lines into multiplets and series.

Yanishevskiy, A. V. and Pavlushenko, I. S.
DETERMINATION OF THE AREA OF THE SURFACE ON THE DISPERSED PHASE IN EMULSIONS. [1959] 9p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17257

Trans. of Zhurnal Prikladnoy Khimii (USSR) 1958, v. 31, no. 8, p. 1215-1220.

A method and apparatus are described for a rapid and sufficiently accurate determination of the degree of dispersion in unstable emulsions. The dispersity is determined by the light-scattering power of emulsions as suggested by the studies of V. La Mer (Chem. Rev. 44: 245, 1949) and G. E. Langlois et al. (Rev. Sci. Instr. 25: 360, 1954). The layout for determining the dispersity consists of the light source and an arrangement for measuring the intensity of the light beam. The schematic diagram of the instrument (called a "light probe") is shown. A small-size FS-K1 photoresistance is used as the photoelectric cell. The suggested method differs from the other known methods by considerably higher sensitivity and simplicity of calibration of the photoelectric cell.

Zhukovitskiy, A. A., Kryukov, S. N. and Soldatov, E. A.
A NON-ISOTHERMAL METHOD OF DETERMINING DIFFUSIONAL CHARACTERISTICS. [1959] 6p.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3643

Trans. of *Zavodskaya Laboratoriya (USSR) 1958, v. 24 [no. 9] p. 1071ff.

EARTH SCIENCES

NATURAL GEOGRAPHIC DATA OF NORTH CHINA. Pt. IV. 19 Feb 59, 46p. 44 refs. JPRS: 1271-N.
Order from OTS $1.25 59-13215

Trans. of mono. Hua-pei-ch'u Tzu-jan Ti-li Tzu-liao, Peiping, 1957, Dec, p. 1-97 (pt. 4).

Topics discussed herein are geobotany, zoogeography, and the transformation of nature. (See also 59-13082)

PROBLEMS IN GEOCHEMISTRY IN THE NEAR FUTURE. 16 June 59, 6p. JPRS: L-816-N.
Order from OTS $0.50 59-13619

Trans. of *Geokhimiya (USSR) 1959, no. 1, p. 3-5.

Alekseyev, A. S.
CERTAIN LAWS GOVERNING THE PROPAGATION OF WAVES IN AN INHOMOGENEOUS MEDIUM. [1959 [5]p. 6 refs. AF-7.
Order from LC or SLA mi$1.80, ph$1.80 59-16705

Trans. of [Akademiya Nauk SSSR. Doklady] 1955, v. 103, no. 6, p. 989-992.

Goryunov, I. V.
COMBATING BOTTOM ICE AND SLUDGE BY ACCELERATING THE FORMATION OF THE ICE COVER (Bor'ba s Donnym l'dom i Shugoy Putem Uskoreniya Obrazovaniya Ledyanogo Pokrova) tr. by Geraldine Kline. May 59 [2]p.
Order from LC or SLA mi$1.80, ph$1.80 59-16567

Trans. of Meteorologiya i Gidrologiva (USSR) 1958, no. 11, p. 31.

Porfir'yev, I. and Nikitin, V.
METEOROLOGISTS OF KAZAKHSTAN: PARTICIPANTS IN THE IGY (Meteorologi Kazakhstana: Uchastniki Mezhdunarodnogo Geofizicheskogo Goda). 14 Jan 59 [3]p. AF 1255421.
Order from LC or SLA mi$1.80, ph$1.80 59-12690

Trans. of Kazakhstanskaya Pravda (USSR) 1958, no. 236, p. 3, col. 5-7.

Climatology and Meteorology

METEOROLOGIYA I GIDROLOGIYA (USSR) 1958, NO. 11, P. 3-72 (Meteorology and Hydrology). [1959] 1v. SOV-50-58-11-(1-25)/25.
Order from OTS $0.70, $4.00/6 mo. PB 141 045T-14
Foreign $0.95, $5.50/6 mo.

Consists of abstracts in English.

Berenbeym, D. Ya. and Kochkarev, G. N.
AN UNUSUAL HAILSTORM (Neobychnyy Grad) tr. by Geraldine Kline. May 59 [2]p.
Order from LC or SLA mi$1.80, ph$1.80 59-16571

Trans. of Meteorologiya I Gidrologiya (USSR) 1958, no. 7, p. 41.

The hailstorm took place on July 19, 1957 in the region of Kerch (45°20'N and 35°40'E). Shapeless (sic) hailstones up to 80mm in size were found.

Deryagin, B. V., Prokhorov, P. S. and others.
DIFFUSION HYGROMETER (Diffuzionnyy Gigrometr). Dec 57 [12]p. 6 refs. C.T.S. no. 383.
Order from LC or SLA mi$2.40, ph$3.30 59-16985

Trans. of *Zhurnal Tekhnicheskoy Fiziki (USSR) 1956, v. 26, no. 4, p. 887-894.

The design of the four hygrometers described is based on the idea of Deryagin and Prokhorov (Doklady, Akad. Nauk, SSSR 54:511, 1946 and Zhur. Fiz. Khim. 24: 503, 1950) regarding the decrease or increase in pressure which arises in the chamber of an instrument containing a drying agent or a moist substance and which is separated from the investigated medium by a porous membrane through which a constant diffusion stream flows. The models described are a two-chamber hygrometer, a three-chamber hygrometer, a hygrometer

with a given sensitivity and short time lag, and a four-chamber model.

Gersht, Ye. P.
CONCERNING THE USE OF RADIOACTIVE ISOTOPES IN METEOROLOGY AND HYDROLOGY. [1959] up. 13 refs.
Order from LC or SLA mi$1.80, ph$1.80
AEC-tr-3607

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 8, p. 62-64.

Tracer techniques in meteorology and hydrology are reviewed.

Khrgyan, A. Kh. and Mazin, I. P.
COMPUTATION OF THE ERRORS IN THE AIRCRAFT COLLECTOR OF DROPS. [1959] 13p. (6 figs. 19 equations omitted) 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-17286

Trans. of Tsentral'naya Aerologicheskaya Observatoriya. Trudy (USSR) 1953, no. 12, p. 3-12.

Khrgyan, A. Kh. and Mazin, I. P.
DISTRIBUTION OF DROPS ACCORDING TO SIZE IN CLOUDS. [1959] 8p. (3 figs. omitted) 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17161

Trans. of Tsentral'naya Aerologicheskaya Observatoriya. Trudy (USSR) 1952, no. 7, p. 56-61.

The data of A. M. Borovikov (Tsentral'naya Aerologicheskaya Observatoriya, Trudy, no. 1, 1947 and no. 3, 1948) is shown to comply well with the formula $n(r) = ar^2\exp(-br)$, where n(r) is the spectrum of drop dimensions, r is the drop radius, and a and b are constants depending on the water contents and the radius of the drops comprising the greatest part of the water content. Further considerations showed that drops of a radius less than 20μ do not grow due to gravitational coagulation. In thin cloud layers, only drops with $r \geq 28\mu$ can grow noticeably. The growth of the radius of larger drops falling through the cloud is proportional to the cloud and to the length of the path passed by the drop.

Litvinov, I. V.
CONTINUOUS RECORDER OF RAIN INTENSITY. [1959] 2p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-17175

Trans. of Akademiya Nauk SSSR. Izvestiya. Ser[iya] Geofiz[icheskaya] 1955, no. 4, p. 381-383.

A flow measuring recorder is described which can measure the instantaneous intensity of rains greater than 1mm/hr with a much greater accuracy than a pluviograph. The construction is as follows: Under a receiving funnel is a box with sloped partitions. The box is placed upon the end of a lever which is fixed perpendicularly to an axis. On the other end of the lever is placed a load balancing the box. On the axis is fixed a curved lever and a damper which is immersed in a vessel containing oil. In contact with the lever is a second curved lever which can revolve on a second axis and which has an attached load. The position of the box is recorded by a pointer on a drum clock strip paper. Rain is gathered by the funnel and flows into the box. The water runs down along the partitions and increases the weight of the box. The more water that runs through the box in a unit of time, the greater will be the weight of the box, and the greater will be its displacement from the initial position balanced by the second load.

Logvinov, K. T.
INTERNATIONAL CONFERENCE ON PROBLEMS OF HYDROMETEOROLOGY. 5 Aug 59, 2p. JPRS: L-903-D.
Order from OTS $0.50 59-11601

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 64-65.

Matveyev, L. T. and Kozharin, V. S.
THE ROLE OF TURBULENT MIXING IN THE FORMATION OF THE STRUCTURE OF STRATUS CLOUDS. [1959] 27p. (13 figs. omitted) 6 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-15982

Trans. of Akademiya Nauk SSSR. Izvestiya. [Seriya Geofizicheskaya] 1956, no. 11, p. 1338-1353.

Peculiarities of water distribution with elevation in St-Sc-Ac and Ns-As-Cs clouds are examined. This analysis of experimental data on the water content of stratus clouds, obtained by flights within clouds and from calculations of Richardson numbers for various layers and physical states of the atmosphere, revealed that turbulent agitation plays a substantial role in forming the internal structure (water content) and boundaries of stratus clouds. The individual cloud layers of the St-Sc-Ac type are usually located below the retaining layers of turbulent exchange. The distribution of the level of turbulent energy with height may be qualitatively evaluated from the Richardson number. Within clouds of the St-Sc-Ac type the water content increases with height throughout most of the cloud. The gradient of temperature and the mean temperature of the clouds depend upon the vertical gradient of water content and the water content itself. Within Ns-As clouds, the water content increases with height in the lowest part of the cloud and decreases in the middle and upper part. Formulas derived for the height of cloud bases agree with actual data.

Nemchinov, S. V.
SHORT PERIOD FORECAST OF NONZONAL SHIFT IN HEIGHTS OF THE ABSOLUTE TOPOGRAPHY FOR THE LOWER AND MIDDLE TROPOSPHERE.
1 June 59, 23p. 9 refs. JPRS: 1633-N.
Order from OTS $0.75 59-13561

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1958, no. 6, p. 752-764.

A linearized set of equations of thermohydrodynamics in a quasigeostrophic approximation is derived while taking account of the stratification and the principal factors of the baro-clinic model of the atmosphere.

The derivation for the nonzonal shift of the heights of absolute topography in the lower and middle troposphere is utilized for 24-hour forecasting of the 1,000-millibar surface of the pressure field in the atmosphere.

Nezhikhovskiy, R. A.
ON THE PROBLEM OF PREPARING HYDROLOGICAL FORECASTS FOR UNEXPLORED RIVERS. 5 Aug 59, 3p. JPRSL L-1004-D.
Order from OTS $0.50 59-11626

Trans. of Meteorology i Gidrologiya (USSR) 1957, no. 7, p. 39-40.

Peryshkin, I. N.
A TORNADO IN WHITE RUSSIA (Smerch v Blerorussii) tr. by Judith B. Danner. Nov 58 [4]p.
Order from LC or SLA mi$1.80, ph$1.80 59-16570

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 5, p. 29-30.

Data on a tornado which occurred near Minsk on 18 August 1956.

Ponomarenko, I. N.
HYDROMETEOROLOGICAL SERVICE IN THE PEOPLE'S REPUBLIC OF ALBANIA. 5 Aug 59, 3p. JPRS: L-1006-D.
Order from OTS $0.50 59-11628

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 7, p. 52-53.

Popova, T. P.
PECULIARITIES OF WARM FRONTS OVER EUROPEAN USSR IN WINTER (Osobennosti Teplykh Frontov nad Evropeyskoy Territorey SSSR Zimoy) tr. by Geraldine Kline, ed. by David Kraus. Oct 58, [13]p.
Order from LC or SLA mi$2.40, ph$3.30 59-16279

Trans. of Meteorologiya i Gidrologiya (USSR) 1957, no. 6, p. 12-20

Reshetov, V. D.
ANALYSIS OF TWO CASES OF CYCLO- AND ANTICYCLOGENESIS. 29 July 59, 20p. 3 refs. JPRS: L-1804-D.
Order from OTS $0.50 59-11728

Trans. of Tsentral'naya Aerologicheskaya Observatoriya. Trudy (USSR) 1957, no. 23, p. 3-15.

The analysis indicates that the mechanism of transfer is downwards from the upper "discharging" (Laplacian) pressure, or how the velocity vortex is realized by a more complex means than according to barometric formula. The examples were selected so that the presence of an upper vortex would be evident during the simultaneous lack of signs of frontal-wave cyclogenesis or convergence-divergence of structure contour.

Rubinshteyn, E. S. and Dubrovin, L. I.
(CONTRIBUTION TO) THE PROBLEM OF THE EARTH'S COLD POLES [AND] WHERE IS THE EARTH'S COLD POLE? (K Voprosu o Poliyusakh Kholoda [and] Gde Nakhoditsiya Poliyus Kholoda) tr. by George S. Mitchell and Irene A. Donehoo. May 59, [9]p.
Order from LC or SLA mi$1.80, ph$1.80 59-16425

Trans of Meteorologiya i Gidrologiya (USSR) 1958, no. 12, p. 28-30 and Priroda (USSR) 1959, Mar, p. 115.

The problem of the earth's cold poles, by E. S. Rubinshtein: Verkhoyansk and Oymyakon, for the present, are still the earth's cold poles although it is possible that under corresponding altitude conditions the same low temperatures may be observed in northern Canada or in Alaska. Where is the earth's cold pole, by L. I. Dubrovin: "The 'Cold Pole' in the Southern Hemisphere, obviously, is in the geometric center of the continent."

Selezneva, Ye. S.
THE MICROSTRUCTURE OF CLOUDS. [1959] 14p. (4 figs. omitted) 12 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15998

Trans. of Meteorologiya i Gidrologiya (USSR) 1948, no. 2, p. 34-43.

Drop size, amount of water in clouds, and number of drops per unit volume are considered using pre-1946 data. According to the distribution curves of drops, it is apparent that their size (diameter) is no greater than 40 to 40 microns, while the modal values d_m vary from 5 to 20 microns. This is confirmation of the assumption that there are no important supersaturations in clouds. Even at supersaturations of 1 to 2%, the condensation process would provide a rapid growth of all drops to a size greatly exceeding the average size of cloud drops. From the stability of the modal values, only slight supersaturation relative to the drops may be assumed.

Shapayev, V. M.
DIURNAL COURSE IN THE FREQUENCY OF WIND DIRECTIONS ON ARCTIC ISLANDS (O Sutochnom Khode Povtoryayemosti Napravleniy Vetra na Arkticheskikh Ostrovakh) tr. by Irene A. Donehoo and George S. Mitchell. Apr 59 [6]p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16426

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 12, p. 32-33.

Tverskoy, P. N.
CLOUD SEEDING AND RELATED RESEARCH IN THE USSR. [1959] 2p.
Order from LC or SLA mi$1.80, ph$1.80 59-15566

Trans. of unidentified Russian mono. Development of Meteorology in the USSR, p. 50-52.

The final goal of the study of atmospheric processes is the solution of the problem of controlling the weather and developing methods to combat dangerous atmospheric phenomena. Soviet meteorologists were the first to organize systematic studies of active influence on the atmosphere. The Rain Institute, which was organized in 1931 and reorganized in 1934 as the Institute of Experimental Meteorology (sic: presumably the Leningrad Institute of Experimental Meteorology), had as its basic task the problem of active influence on the atmosphere. The first years of the institute were naturally spent on organizational measures. V. N. Obolenskiy interested some important Soviet scientists in this field and a number of them came to work at the institute, including Professor N. N. Andreyev, V. V. Bazilevich, and G. I. Prussakov. But most of the required personnel had to be trained by the postgraduate fellowship method. The first experiments included those on the protection of plants from the first autumn frosts, and on the dispersal and creation of fogs, as well as preliminary studies of the possibilities of influencing clouds by electrical, chemical, acoustical, mechanical and other methods. For these experiments and for laboratory studies, the institute developed new, complex instruments and built special units, including a powerful Tesla coil to creat ions, a powerful X-ray installation, and a "fog chamber," in which fogs very similar to natural fogs could be formed under laboratory conditions. This chamber was used to study the properties of fogs by subjecting them to various types of physical effects. The instruments and units were used for studies in cloud microphysics, in which drop size and number, water content of clouds, and humidity in fogs at low temperatures were determined. Emphasis was placed on water-vapor condensation processes and coagulation of water drops.

Zhavoronkina, T. K.
THE CHEMICAL COMPOSITION OF ATMOSPHERIC PRECIPITATION. 18 Feb 59, 6p. 5 refs.
JPRS: L-657-N.
Order from OTS $0.50 59-13224

Trans. of Meteorologiya i Gidrologiya (USSR) 1958, no. 9, p. 22-24.

Geodesy

GEODEZIYA I KARTOGRAFIYA (USSR) 1959, NO. 2, P. 3-80 (Geodesy and Cartography). [1959] 1v. SOV-6-59-2-(1-22)/22.
Order from OTS $0.60, $3.50/6 mo. PB 141 001T-13
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

Kuzivanov, V. A.
DETERMINATION OF GRAVITY AT SEA BY GRAVIMETER. 25 Feb 58, 14p. (2 figs. omitted) 3 refs.
JPRS: L-654-N.
Order from OTS $0.50 59-13219

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1958, no. 5, p. 648-654.

To measure gravity at sea it is expedient to use a gravimeter with an overdamped system and with a pendulum near to the horizon. The influence of perturbing members may be considerably reduced and many of these members may be ignored. A still further reduction in perturbing influences is achieved by applying two opposite-directed pendulums. The readings of these pendulums should be corrected for the influence of the squares of the angles of inclination α and β of the base of the device, and for the influence of horizontal accelerations $\ddot{X}$ and $\ddot{Y}$. To introduce these corrections it is necessary to have data from long-period pendulums and vertical and horizontal accelerometers.

Geology

ON THE FORTHCOMING SESSION OF THE INTERNATIONAL GEOLOGY CONGRESS (No. 21) 30 June 59, 6p. JPRS: L-846-N.
Order from OTS $0.50 59-13657

Trans. of Sovetskaya Geologiya, Sbornik Statei (USSR) 1959, no. 1, p. 163-165.

Announcement of the International Geology Congress to be held in Copenhagen in August 1960.

Amiraslanov, A. A.
RESULTS OF THE ALL-CHINA GEOLOGICAL CONFERENCE [NO. 1]. 16 June 59, 6p. JPRS: L-815-N.
Order from OTS $0.50 59-13617

Trans. of Razvedka i Okhrana Nedr (USSR) 1958 [v. 24] no. 11, p. 62-64.

Chestnov, F.
VARIOUS METHODS OF GEODETIC SURVEYING: RADIOWAVES MEASURE THE GLOBE (Radiovolny Izmeryayut Zemlyu). 10 Apr 59 [4]p. AF 1255679.
Order from LC or SLA mi$1.80, ph$1.80 59-16471

Trans. from Promyshlenno-Ekonomicheskaya Gazeta (USSR) 1958, 5 Dec, p. 4.

Fedynskiy, V. V.
DEVELOPMENT OF APPARATUS FOR CONDUCTING GRAVIMETRIC MEASUREMENTS WHILE IN MOTION. 24 Mar 59, 12p. (6 figs. omitted) 16 refs.
JPRS: L-1571-D.
Order from OTS $0.50 59-11471

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1958, no. 1, p. 146-152.

Karavayeva, N. A.
HIGH MOUNTAINOUS SOILS OF EASTERN SAYAN, tr. by Miroslaw M. Czapowskyj. [1959] 14p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-14996

Trans. of *Pochvovedeniye (USSR) 1958, no. 4, p. 61-66.

Kopanev, I. D
AIR TEMPERATURE AND HUMIDITY OVER A DRAINED BOG (Temperature i Viazhnost' Vozdukha na Osushennom Bolote) tr. by George S. Mitchell Apr 59 [10]p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16423

Trans. of *Akademiya Nauk SSSR. Izvestiya. Seriya Geofizicheskaya, 1957, no. 4, p. 548-551.

Peculiarities in the summer air temperature and humidity regimes over a drained bog (in the Collective Farm of Oydermaa, situated in the western portion of Estonia) are studied. The region under investigation is a plain, and mostly a lowland bog, in which the thickness of the reed-sedge peat attains four meters in boggy soils.

Puzyrev, N. N.
NUMERICAL METHODS OF AVERAGING IN DETERMINING VELOCITIES FROM REFLECTION TRAVEL-TIME CURVES. [1959] 27p.
Order from ATS $33.70 ATS-70L29R

Trans. of Priklad[naya] Geofiz[ika] (USSR) 1957, no. 16, p. 50-84.

Voronov, P. S.
STRUCTURAL DIAGRAM OF ANTARCTICA. [1959] [5]p. 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15543

Trans. of [Akademiya Nauk SSSR] Kompleksnaya Anarticheskaya Ekspeditsiya. Informatsionnyy Byulleten', 1958, p. 21-25.

A discussion is presented on the geological structure of the Antarctic, and a structural diagram is given showing the post Proterozoic platforms, zones of Caledonomiau, Hercyniau, and Alpine folding, the sima region of the Pacific Ocean, the strike of the principal folds and Cenozoic faults, Alpine frontal downwarps, Cenozoic block-structures, oceanic depressions deeper than 4000 m, epicenters of recent earthquakes, and Cenozoic volcanoes.

Yeh, Hui.
SHIFTING RIVER COURSES IN THE LOWER REACHES OF THE PEI CHIANG IN KWANGTUNG PROVIDENCE. 26 June 59, 35p. 31 refs.
JPRS: 1720-N
Order from OTS $1.00 59-13662

Trans. of Ti-Li Hsueh-pao (Chinese People's Republic) 1957, v. 23, no. 2, p. 145-159.

Observations, based on a trip to the vicinity of Shih-chiae and San-shui to do field work which lasted more than a month and on previous trips to this area, are presented on (1) the basic structural and topographical features of the area, (2) the geological process of channel development in the Pei Chiang, and (3) the significance of the application of the law of deflection of river courses to the right.

Oceanography

Kriss, A. E.
MICROBIOLOGICAL RESEARCH IN THE REGION OF THE NORTH POLE. [1959] [16]p.
Order from LC or SLA mi$2.40, ph$3.30 59-15909

Trans. from Akad[emiya] Nauk SSSR. Vestnik, 1955, [v. 25] no. 1, p. 30-40.

Kriss, A. E.
MODERN MICROBIOLOGICAL INVESTIGATIONS IN THE CENTRAL ARCTIC. [1959] [6]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15910

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1955, [v. 25] no. 9, p. 31-34.

Savilov, A. I.
THE GROWTH AND VARIATION IN GROWTH OF THE WHITE SEA INVERTEBRATES MYTILUS EDULIS MYA ARENARIA AND BALANUS BALANOIDES. PT. I. MYTILUS EDULIS IN THE WHITE SEA [AND] CONCLUSIONS. Dec 56 [62]p. 67 refs.
Order from LC or SLA mi$3.90, ph$10.80 59-14723

Trans. of [Akademiya Nauk SSSR. Institut Okeanologii. Trudy] 1953, v. 7, p. 198-213, 252-258.

Physics of the Atmosphere

Danilin, B. S., Mikhnevich, V. V. and others.
PROBLEM OF THE MEASUREMENT OF PRESSURE AND DENSITY OF THE UPPER LAYERS OF THE ATMOSPHERE WITH THE AID OF AN ARTIFICIAL EARTH SATELLITE. [1959] 32p. 34 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-16756

Trans. of Uspekhi Fizicheskikh Nauk (USSR) 1957, v. 63, no. 1, p. 205-225.

Danilin, B.
"RESPIRATION" OF THE ATMOSPHERE ('Dykhaniye' Atmosfery). 21 May 59 [4]p. AF 1255822.
Order from LC or SLA mi$1.80, ph$1.80 59-16483

Trans. from Izvestiya (USSR) 1959, no. 99, p. 6.

Respiration is used here to describe the periodic expansion and contraction of the atmosphere. This phenonomenon is reported to have been confirmed by the first two Soviet sputniks. The cause is suggested to lie in the processes occuring on the sun.

Gringauz, K. I. and Zelikman, M. Kh.
MEASUREMENT OF THE CONCENTRATION OF POSITIVE IONS ALONG THE ORBIT OF THE ARTIFICIAL EARTH SATELLITE. [1959] 19p. 23 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16755

Trans. of unidentified Russian article.

Imyanitov, I. M.
MEASUREMENT OF ELECTROSTATIC FIELDS IN THE UPPER LAYERS OF THE EARTH'S ATMOSPHERE. [1959] 23p. 14 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-16761

Trans. of Uspekhi Fizicheskikh Nauk (USSR) 1957, v. 63, no. 1, p. 267-282.

The use of artificial satellites for measuring the electrostatic fields in the upper layers of the atmosphere requires the development of special methods and apparatus. In the present work are examined the characteristics of measurements of electrostatic fields in the upper layers of the atmosphere and methods for building apparatus suitable for these measurements.

Mirkotan, S. F. and Drachev, L. A.
PHASE-METHOD STUDY OF LARGE-SCALE INHOMOGENEITIES IN THE IONOSPHERE. [1959] 2p.
Order from LC or SLA mi$1.80, ph$1.80 59-15570

Trans. of [Mezhdunarodnyy Geofizicheskiy God. Informatsionnyy Byulleten] (USSR) 1958, no. 4, p. 56-57.

In research on the fine structure on the ionosphere, the Faculty of Physics of Moscow National University, is using a phase method, which consists in recording, at three mutually separated points on the earth's surface, the variations of phase-path of the reflected field from the ionosphere. The Department of Propagation, Radiation and Channeling of Electromagnetic Waves, Faculty of Physics, Moscow National University, has initiated a simultaneous recording of the phase deviation at three mutually separated points. These points are: at Moscow National University (Lenin Hills, Moscow), at Chashnikovo, and at Krasnaya Pakhra (Research Institute for Terrestrial Magnetism, Ionosphere, and Radiowave Propagation). It is proposed to put into operation, from the beginning of 1958, modernized and more powerful phasing equipment which will be able to combine the amplitude and phase measurements at the three points and conduct explorations on several frequencies simultaneously

Mirtov, B. A. and Istomin, V. G.
INVESTIGATION OF THE ION COMPOSITION OF THE IONIZED LAYERS OF THE ATMOSPHERE. [1959] 16p. 6 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16762

Trans. of unidentified Russian article.

Mirtov, B. A.
ROCKET INVESTIGATIONS OF THE COMPOSITION OF THE ATMOSPHERE AT HIGH ALTITUDES. [1959] 24p. 18 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-16757

Trans. of Uspekhi Fizicheskikh Nauk (USSR) 1957, [v. 63, no. 1] p. 181-196.

Mizhnevich, V. V.
MEASUREMENT OF PRESSURE IN THE UPPER ATMOSPHERE. [1959] 11p. (1 fig. omitted) 5 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16760

Trans. of unidentified Russian article.

ENGINEERING

SAFETY DEVICE FOR PILOT FLAME, tr. by C. P. 26 Mar 59, 7p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14688

Trans. of French patent 827388, gr. 15, cl. 2, appl. 1 Oct 37, granted 24 Jan 38, pub. 25 Apr 38 (pat. appl. filed in Germany 3 Oct 36) by Junkers & Co. G. m. b. H., Germany.

The invention consists in disposing the auxiliary pipes, the ignition tubes and the main burner of the pilot flame controlling the safety valve in such a way with respect to one another that the safety valve can not open when one or the other of the auxiliary pipes is obstructed.

Aeronautical Engineering

AIRPLANE WITH CONSTANT PRESSURE GAS TURBINE DRIVE, tr. by C. P. 8 May 59, 6p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-16853

Trans. of Swiss patent 174257, cl. 129 e, appl. filed 25 Jan 34, registered 31 Dec 34, pub. 16 Apr 35 (Priority: Germany, 15 Feb 33) by Aktiebolaget Milo, Stockholm, Sweden.

The airplane is characterized in that the flow cross section of the propellant is made first to constantly increase and then diminish as far as the outlet from

the airplane. In so doing a portion of the velocity energy of the propellant issuing from the last wheel of the turbine can be converted by a diffuser into pressure energy.

COORDINATION IN SOVIET AIRCRAFT SERVICING AND MAINTENANCE. 29 May 59 [4]p. 2 refs. AF 1255841.
Order from LC or SLA mi$1.80, ph$1.80 59-16963

Trans. from Soviet open sources, 1958.

THE CZECHOSLOVAK "BRIGADIR" AIRCRAFT (Chekhoslovatskiy samolet "Brigadir") 13 Jan 59, 3p. AF-1 255 414.
Order from LC or SLA mi$1.80, ph$1.80 59-12687

Summary trans. from Sovetskaya Aviatsiya (USSR) 1958, no. 280, p. 4.

THE YAK-24 HELICOPTER: [SELECTED ARTICLES]. 18 Mar 59 [7]p. (5 figs. omitted) 1 ref. AF 1255652.
Order from LC or SLA mi$1.80, ph$1.80 59-16432

Trans. of Ogonek (USSR) 1957, no. 14, p. 7-8; Sovetskaya Aviatsiya (USSR) 1957, no. 173, p. 1, cols. 5-6 and Izvestiya (USSR) 1956, no. 52, p. 4, cols. 5-6.

Arkhangel'skiy, A. A.
MEMOIRS OF [AN] AIRCRAFT DESIGNER (Zapiski Aviakonstruktora). 24 Apr 59 [21]p. (7 figs. omitted). AF 1255642.
Order from LC or SLA mi$2.70, ph$4.80 59-16461

Trans. from Sovetskaya Aviatsiya (USSR) 1958, 25-31 July.

The author speaks of the scientists and designers who contributed to the development of the science of aviation and to the Soviet airplane building.

Babay, G. A. and Sokolov, V. I., Editors.
METHOD OF LANDING APPROACH UNDER ADVERSE WEATHER CONDITIONS. 16 Mar 59 [8]p 10 refs. AF 1255640.
Order from LC or SLA mi$1.80, ph$1.80 59-16460

Trans. of monos. Vozhdeniye Odnomestnogo Samoleta (Air Navigation of a Singleseater Airplane) 1956, p. 148-155 and Spravochnik Aviatsionnogo Shturmana (Air Navigator's Reference Book) 1957, p. 286-287.

Information is presented on (1) the "straight-in" landing approach, and (2) the landing approach by the "large box" pattern by means of the instrument landing system.

Babay, G. A. and Sokolov. V. I., Editors.
THE NL-10 NAVIGATIONAL SLIDE RULE (Navigatsionnaya Lineyka NL-10). 9 Mar 59 [3]p. AF 1255608.
Order from LC or SLA mi$1.80, ph$1.80 59-16455

Trans. of monos. Vozhdeniye Odnomestnogo Samoleta (Air Navigation of a Singleseater Airplane) 1956, p. 41-43 and Spravochnik Aviatsionnogo Shturmana (Navigator's Reference Book) 1957, p. 190-191.

Gilzin, Karl.
TRAVEL TO DISTANT WORLDS. 26 Mar 59, 8p. AF 1255671.
Order from LC or SLA mi$1.80, ph$1.80 59-16470

Summary trans. review of mono. Puteshestviye k Dalekim Miram, Moscow, 1957.

Golovatyy, S.
AN IMPROVED SWITCH FOR A BAROSPEEDOGRAPH (Kak Mozhno Usovershenstvovat' Barospidograf). 19 Mar 59, 3p. AF 1255651.
Order from LC or SLA mi$1.80, ph$1.80 59-16465

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 13 Feb. p. 2.

Capt. of Technical Service Yu. Makarov designed an improved switch with which a barospeedograph can be automatically switched on after the takeoff. The switch consists of an RT-10 relay, a switch, a lever for switching on the clockwork, a driving spring, and a heater of the barospeedograph. The switch is coupled with the electric network of the landing gear system. Such an improved switch makes it possible to set in motion the clockwork of the barospeedograph and to switch on its heater as soon as the landing gear is retracted by the fighter pilot. The barospeedograph can be also switched off during the landing as soon as the landing gear is extended.

Gurovskiy, N. N.
CONCERNING THE PROBLEM OF THE HYGIENIC EVALUATION OF THE VIBRATION FACTOR OF HELICOPTER MI-4. 21 July 59, 9p. 13 refs. JPRS: L-1803-D.
Order from OTS $0.50 59-11727

Trans. of Gigiyena i Sanitariya (USSR) 1959 [v. 24] no. 3, p. 27-33.

Meylakhs, M.
THE NEED OF NEW SPORT AIRPLANES: AVIATION CONSTRUCTORS MUST ASSIST FLIER-SPORTSMAN (Aviatsionnyye Konstruktory Dolzhny Pomoch' Letchikam-Sportsmenam). 5 Mar 59, 2p. AF1255605.
Order from LC or SLA mi$1.80, ph$1.80 59-16454

Summary trans. from Sovetskaya Aviatsiya (USSR) 1958, 19 Nov. p. 4.

A summary of a letter to the editor.

Novikov, L.
"PCHELKA" [LITTLE BEE] IN THE AIR ("Pchelka" v Vozdukhe) tr. by Andrew Levchenko, Jr. [1959] [4]p. (4 illus. omitted). H-2583.
Order from OTS $0.50 59-11973

Trans. of Kryl'ya Rodiny (USSR) 1958, no. 6, p. 6-7.

A small plane has been developed powered by two AI-14R type motors, each with a 260 hp take-off rating. The plane has a maximum flying weight of 3200 kg and requires a take-off and landing field of less than 100 m. It can carry six passengers plus 150 kg of cargo. Approximately 70 liters of gasoline are required per flight hour.

Ostoslavskiy, I. V.
AIRCRAFT AERODYNAMICS. PART I. DYNAMICS OF THE AIRCRAFT AS A MATERIAL POINT. [1958] [315]p. F-TS-9423/V, Pt. 1.
Order from OTS $5.00 59-11993-1

Trans. of mono. Aerodinamika Samoleta, Moscow, 1957, pt. 1, chap. 1-8.

(A textbook, written in accordance with the syllabi of the courses "Aircraft Mechanics" and "Aircraft Stability, Controllability and Maneuverability" and designed for students at aviation institutes.)
Contents:
Equations of motion of the aircraft as a material point
Basic data for aerodynamic calculation of aircraft
Aerodynamic calculation of aircraft by the N. E. Zhukovski method (the method of thrusts).
Aerodynamic calculation by the power method. Other methods of aerodynamic calculation
Range and duration of flight
Aircraft maneuvers in the vertical plane
Aircraft maneuver in the horizontal plane. Concept of the maneuver in space
Take-off and landing data of the aircraft

Ostoslavskiy, I. V.
AIRCRAFT AERODYNAMICS. PART II. DYNAMICS OF THE AIRCRAFT AS A SYSTEM OF MATERIAL POINTS. [1958] [308]p. F-TS-9423/V, Pt. 2.
Order from OTS $5.00 59-11993-2

Trans. of mono. Aerodinamika Samoleta, Moscow, 1957, pt. 2, chap. 1-6.

Contents:
Equations of motion of the aircraft as a system of material points, and the methods of their solution
Moments of forces acting on the aircraft in the longitudinal plane of symmetry
Forces and moments acting on the aircraft in the coordinate planes $x0z_1$ and $y0z_1$
Moments acting on the aircraft in unsteady and in curvilinear flight
The hinge moment of the control surfaces. Forces on the control levers
Longitudinal disturbed motion of the aircraft and its stability

Ostoslavskiy, I. V.
AIRCRAFT AERODYNAMICS. PART III. [DYNAMICS OF THE AIRCRAFT AS A SYSTEM OF MATERIAL POINTS (CONT'D)]. [1958] [210]p. 12 refs. F-TS-9423/V, Pt. 3.
Order from OTS $3.50 59-11993-3

Trans. of mono. Aerodinamika Samoleta, Moscow, 1957, part 2, chap. 7-12.

Contents:
Longitudinal stability, controllability, and maneuverability of the aircraft
Lateral disturbed motion of the aircraft and its lateral stability
Lateral stability, controllability, and maneuverability of the aircraft
Flight at supercritical angles of attack: spin of the aircraft
Stability of the aircraft in motion on the ground
Influence of the structural elasticity on the stability and controllability of the aircraft

Otryashenkov, Yu.
TRANSITORS IN RADIO CONTROLLED FLYING MODELS; SEMICONDUCTOR DEVICES USED IN THE EQUIPMENT OF RADIO CONTROLLED FLYING MODELS (Ispol'zovaniye Poluprovodnikovykh Priborov v Apparature Radioupravlyayeymykh Modeley). 26 May 59 [9]p. (7 figs. omitted). AF 1255830.
Order from LC or SLA mi$1.80, ph$1.80 59-16638

Summary trans. from Kryl'ya Rodiny (USSR) 1959, no. 2, p. 25-27.

Panovko, Ya.
WHY "THE MOON ROCKET" DID NOT REACH THE TARGET (Pochemu "Lunnaya Raketa" ne Dostigla Tseli). 19 Jan 59 [4]p. (1 fig. omitted). AF 1255446.
Order from LC or SLA mi$1.80, ph$1.80 59-12709

Trans. of Kazakhstanskaya Pravda (USSR) 1958, no. 256, p. 4, col. 1-5.

The U. S. lunar-probe rocket did not quite achieve the velocity, about 40,000 km/hr, which is required to reach the moon.

Pavolovskiy, B. V. and Liberkheyn, N. M.
NOISE SOURCES IN AIRPLANES AND MEASURES TO COMBAT THE NOISE AT THE SOURCES. [1959] [14]p. NA-7a.
Order from LC or SLA mi$2.40, ph$3.30 59-16729

Trans. of unidentified mono. Sound Proofing of Airplanes, chap. 3, p. 30-42.

Discussions are presented on the principle sources of airplane noises: (a) propeller noise, (b) engine exhaust noise, (c) engine noise, (d) aerodynamic noise, (e) noise from the heating and ventilating system, and (f) airplane noise caused by negligence in the construction of the plane. A short discussion is also given on noises met in jet planes. (See also 59-16728)

Pavolovskiy, B. V. and Liberkheyn, N. M.
A SHORT METHOD FOR CALCULATING THE ACOUSTIC TREATMENT OF AIRPLANES. [1959] [16]p. NA 7B.
Order from LC or SLA mi$2.40, ph$3.30 59-16728

Trans. of unidentified mono. Soundproofing of Airplanes, chap. 7.

See also 59-16729

Sedov, L. I.
TOWARD NEW SUCCESSES IN SPACE FLIGHTS (K Novym Uspekham v Kosmicheskikh Poletakh). 27 May 59 [3]p. AF 1255835.
Order from LC or SLA mi$1.80, ph$1.80 59-16637

Trans. from Pravda, Moscow (USSR) 1959, 15 May, p. 4.

An encomium.

Simonov, V.
A TRAINING SAILPLANE (Trenirovochnyy Planer-paritel'). 19 May 59 [4]p. AF 1255819.
Order from LC or SLA mi$1.80, ph$1.80 59-16484

Summarized trans. from Sovetskiy Patriot (USSR) 1959, 4 Mar. p. 4.

Vishnevetskiy, N.
THE CZECHOSLOVAK "MORAVA L-200" AIRCRAFT ("Morava L-200 v. Kieve). 17 Mar 59, 3p. AF 1255644
Order from LC or SLA mi$1.80, ph$1.80 59-16438

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 12 Feb, p. 4.

Recently, two Czechoslovak "Morava L-200" aircraft landed at the Kiev airport. The "Morava L-200" aircraft (see photo attached to this report) is powered by two "Walter-Minor-6" engines of 160 HP each. The cruising speed of this aircraft is 275 km/hour. It is equipped with the retractable tricycle landing gear, radio, radio compass, and other flying and navigational instruments for a flight and landing under adverse weather conditions. The "Morava L-200" aircraft can be successfully used as a transport aircraft for four passengers, or as an ambulance. (The translation is given above in its entirety.)

Yegorov, V. A.
CERTAIN PROBLEMS ON THE DYNAMICS OF FLIGHT TO THE MOON. [1959] 67p. 19 refs.
Order from LC or SLA mi$3.90, ph$10.80 59-16771

Trans. of unidentified Russian mono.

Results are presented of electronic computations made by the Mathematics Institute of the Academy of Sciences, USSR, from 1953 to 1955. Equations of motion for the circular-limit 3-body (earth, moon, and rocket) problem in the coordinate system (rotating and linear) connecting the centers of the earth and moon have a Jacoby integral of energy. This permits an exact solution of the minimum initial velocities. Numerical integration, however, shows that minimum-velocity trajectories are almost eliptical and the rocket must make 200 or more revolutions about the earth before reaching the moon. A projectile starting from the earth on an approach trajectory cannot be captured by the moon. The movement relative to the moon on approach trajectories is always faster than parabolic selenocentric velocities. An analysis of the problem of landing on the moon showed that the declination of the selenocentric trajectory is a quadratic function of small errors in the initial data. The method of determining the initial data pertaining to returning to the earth was found from an analysis of the problem of circling the moon. Plane periodic flights around the moon are almost impossible: there is only one set of trajectories. For a close-in circumferential flight around the moon (especially with a slant entry into the earth's atmosphere) a correction in the passive section is necessary. For trajectories aimed directly at the moon or for distant circumferential flight around it, the accuracy requirements are reduced and no correction in the passive factor is required because only rockets can achieve a velocity of the parabolic order.

Yugov, Ye and Serov, A. E.
MAN BEFORE TAKING OFF TO SPACE (Chelovek pered startom v Kosmos). 12 Feb 59 [5]p. AF 1255517.
Order from LC or SLA mi$1.80, ph$1.80 59-16413

Trans. of Izvestiya (USSR) 1958, 4 Oct. p. 2.

Physiological problems involved in space flight and during acceleration are described in laymen's terms.

Chemical Engineering

IZVESTIYA VYSSHIKH UCHEBNYKH ZAVEDENIY. KHIMIYA I KHIMICHESKAYA TEKHNOLOGIYA (USSR) 1958, NO. 6, P. 3-132 (News of the Institutes of Higher Learning. Chemistry and Chemical Technology). [1959] 1v. SOV-153-58-6-(1-22)/22.
Order from OTS $1.00, $5.50/year PB 141 056T-6
Foreign $1.25, $7.00/year

Consists of abstracts in English.

WALL-MOUNTED WATER HEATER WITH EXHAUST HOOD. 26 Jan 59, 5p. (4 figs. omitted) 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-12927

Trans. of Dutch patent 44,150, class 36e 1, appl. 18 Dec 33, laid open to inspection 16 May 38, granted 17 Sep 38, pub. 15 Oct 38, by Geodesia-Werk G. m. b. H., Badespparate- und Metallwarenfabrik, Germany.

Andrieu, R[éné].
FLUIDIZATION BY LIQUIDS. INFLUENCE OF THE SIZE CONSIST OF THE SOLID. [1959] 7p. (15 formulas 3 figs. omitted).
Order from SLA mi$1.80, ph$1.80 59-15714

Trans. of [Congres International de Chimie Industrielle (no. 27). Brussels, 1954 [Comptes Rendus, v. 20] p. 228-231.

Artyukhov, I. M.
CONVERSION OF HYDROCARBONS FOR PRODUCTION OF GASES SUITABLE FOR CHEMICAL SYNTHESIS. [1959] [13]p. 2 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-18334

Trans. from Gazovaya Promyshlennost' (USSR) 1958, no. 5.

Böhm, Wilhelm.
PROCESS AND APPARATUS FOR PREVENTING THE FORMATION OF PIPING AND BLOWHOLES BY PRODUCING A VACUUM OVER THE LIQUID MELT, tr. by J. C. Levy. 20 Feb 59, 8p. (6 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14208

Trans. of German patent 569,699, Class 31c, Group 33/02; patented from 24 Feb 27, granting announced 19 Jan 33, pub. 6 Feb 33.

Bukhovets, S. V. and Pukhova, N. K.
A PLATINUM COMPLEX WITH DIPHENYLACETYLENE IN THE INNER SPHERE. 26 Feb 59, 4 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15485

Trans. of Zhur[nal] Neorg[anicheskoy] Khim[ii] (USSR) 1958, v. 3 [no. 7] p. 1714-1715.

$[(C_2H_5)_3NH]_2\ PtCl_6$ was obtained by treating a solution of H_2PtCl_6 with an equimolar quantity of $N(C_2H_5)_3$ or with $[(C_2H_5)_3NH]Cl$. $[(C_2H_5)_3NH]$ $[PtCl_3(C_6H_5\text{-}C{\equiv}C\text{-}C_6H_5)]$ was prepared from $C_6H_5\text{-}C{\equiv}C\text{-}C_6H_5$ and $[(C_2H_5)_3NH]_2\ PtCl_6$ dissolved in chloroform. The yield was 43.1%.

Danusso, F., [Calcagno, B. and Sianesi, D.]
STEREOSPECIFIC POLYMERIZATION OF STYRENE. NOTE V. EFFECTS OF TEMPERATURE ON THE CATALYSIS BY $Al(C_2H_5)_3$ AND $TiCl_4$. [1959] [18]p. 6 refs.
Order from SLA mi$2.40, ph$3.30 59-17387

Trans. of la Chimica e l'Industria (Italy) 1959, v. 41 [no. 1] p. 13-18.
Another translation is available from SLA mi$2.70, ph$4.80 as 59-15033 [1959] 23p.

The effect of temperature on the overall process by following the kinetic outline based on the preceding papers of this series (59-15229, 59-15514, 59-15978, and 59-17209) it has been possible to study experimentally the effect of temperature in its three principal aspects: namely, the effect on the reaction of formation of the catalyst; on the polymerization itself; and on the change of the catalyst during the course of the polymerization. Thus it has been possible to circumscribe the temperature conditions conducive to achieving the maximum catalyst activity and to increase the stability of the catalyst during the course of the polymerization. In addition, the activation energy for the overall process was determined to be 10,500 cals/mole, probably attributable to the polymerization proper. (See also 59-15513)

Herbst, H.
THE CRACKING OF SOLID PARAFFIN INTO LOW BOILING CONSTITUENTS BY BOILING WITH ACTIVATED CARBON. [1959] 5p. T-522.
Order from SLA mi$1.80, ph$1.80 59-17050

Trans. of Z[eitschrift für] Angew[andte] Chem[ie] (Germany) 1926, v. 39 [no. 6,] p. 194-196.

Holleck, L. and Hartinger, L.
THE EFFECT OF AMINO POLY-ACETIC ACIDS AND THE EXCHANGER FORM ON THE SEPARATION OF CERITE EARTHS. Dec 54 [9]p. 9 refs. AERE Lib/Trans 497.
Order from SLA mi$1.80, ph$1.80 59-17330

Trans. of Angewandte Chemie (West Germany) 1954, v. 66, no. 19, p. 586-589.

Huisgen, Rolf and Sauer, Jürgen.
NUCLEOPHIL AROMATIC SUBSTITUTIONS: [VIII]. KINETICS OF THE LIBERATION OF THE BENZINE FROM BENZENE HALIDES, tr. by Carl Demrick. [1959] 18p. 30 refs.
Order from SLA mi$2.40, ph$3.30 59-17008

Trans. of Chemische Berichte (West Germany) 1959, v. 92 [no. 1] p. 192-202.

For the liberation of the benzine from benzene halides with strong bases there are described various sequences of the halogen reactivity. The kinetical measurement by potentiometric Halϕ titration gives for phenyl-lithium as the base the reactivity sequence: $F \gg Br > Cl > I$. With the more-weakly-basic lithium-piperidine the benzene halides exhibit qualitatively the same RG sequence, but surprisingly higher RG constants. Excessive piperidine decreases the RG constants of benzene fluoride, while those of benzene-bromide and -iodide experience an increase. The dependence of the RG on the constitution of the employed lithium amide indicates steric factors. The experimental material is in agreement with a two-stage chemism of the arine liberation from aromatic halides. The o-lithium-benzene-halide as the intermediate stage furnishes at LiHal elimination the benzine; a competing demetalization by free amine accounts for the variable influence of the amine. (See also 59-17006)

Kotter, Erwin.
THE MODERN PREPARATION AND PROCESSING OF CHEMICALS FROM PETROCHEMICAL RAW MATERIALS. [1959] 9p. 18 refs. T-515.
Order from SLA mi$1.80, ph$1.80 59-17061

Trans. of Erdöl und Kohle (West Germany) 1959, v. 12, [no. 1] p. 17-20.

The materials and processes discussed in this survey are divided as follows: (1) The paraffin hydrocarbons; (2) the mono-olefins; (3) the diolefins, acetylene and its derivatives; and (4) the naphthenes, the aromatics, and various petrochemical processes and reactions.

Kuhn, Werner.
THE CONSIDERATION OF A NUMBER OF RESISTANCES TO DIFFUSION AND TRANSPORT IN DISTILLATION AND SIMILAR PROCESSES OF SEPARATION. Feb 55 [18]p. 5 refs.
AERE Lib/Trans 507.
Order from SLA mi$2.40, ph$3.30 59-17334

Trans. of Helvetica Chimica Acta (Switzerland) 1954, v. 37 [no. 5] p. 1407-1422.

Kuhn, W., Baertschi, P., and Thurkauf, M.
THE SEPARATION OF MATERIALS IN PRECISION DISTILLATION COLUMNS. Dec 54 [52]p. 29 refs.
AERE Lib/Trans 476.
Order from SLA mi$3.60, ph$9.30 59-17323

Trans. of Chimia (Switzerland) 1954, v. 8 [no. 5] p. 109-122; [no. 6] p. 145-156.

Levin, M. Ye., Malinin, G. A. and others.
THE DETECTION OF WAR GASES (CHEMICAL RECONNAISSANCE). [1959] [3]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15811

Trans. of mono. Zashchita ot Sredstv Massovogo Porazheniya (Protection from Means of Mass Attack) Moscow, 1958, Chap. 10 (Reconnoitring of Centres of Attack) p. 117-120.

Descriptions are given of the Simplified Indication Instrument and a similar model called the Chemical Reconnaissance Instrument. They are designed to detect mustard gas, nitrogen mustard gas, prussic acid, phosgene and diphosgene, halogeno-cyanogens, and Sarin and other organo-phosphorus war gases which are included in the armament of the capitalist States.

Lombardi, Erminio and Giuffrè, Luigi.
STRUCTURE OF LINEAR LOW MOLECULAR WEIGHT POLYMERS OF ACETYLENE. 30 June 59 [9]p. 3 refs.
Order from SLA mi$1.80, ph$1.80 59-17065

Trans. of Accad[emia] Naz[ionale dei] Lincei. Classe [di] Sci[enze] Fiz[iche], Mat[ematiche] e Nat[urali]. Rend[iconti] (Italy) 1958, [ser. 8] v. 25 [no. 1-2] p. 70-74.

Results are reported which were obtained in the study of the structure of low-molecular-weight linear polymers of acetylene obtained by extraction with solvents using polyacetylene prepared, as described previously (59-15708), by polymerizing acetylene with catalytic systems, similar to those generally used in the stereospecific polymerization of α-olefins, that is based on an organometallic compound of a metal belonging to one of the first three groups of the periodic system and a transition metal compound. The study carried out on the polymeric fractions extractable with acetone and with chloroform of the polymer showed that the acetylene polymers examined contain linear chains with resonating conjugated double bonds of the type $(-CH=CH-CH=CH-CH=CH-)_n$. (See also 59-17072)

Natta, G., Porri, L. and others.
STEREOSPECIFIC POLYMERIZATION OF CONJUGATED DIOLEFINS. NOTE III. POLYMERIZATION OF BUTADIENE WITH THE SYSTEM $Al(C_2H_5)_3/TiCl_4$. [1959] 14p. 13 refs.
Order from SLA mi$2.40, ph$3.30 59-17384

Trans. of la Chim[ica] e l'Ind[ustria] (Italy) 1959, v. 41, no. 5, p. 398-404.

A report is made of the employment of catalysts obtained through reacting aluminum triethyl with $TiCl_4$ in the polymerization of butadiene. The raw polymerization products display different structures depending on the ratio of Al to Ti. At low ratios, (less than about 0.5), the polymers obtained show a predominantly 1,4 trans, partially cross linked structure, resulting from a polymerization mechanism of a cationic type; at a ratio of 1:1.3 the polymers are amorphous and constituted principally of macromolecules with a mixed 1,4 cis and 1,4 trans structure; at a ratio of ~ 2 the result is mechanical mixtures of 1,4 trans polymers which are crystalline and 1,4 cis polymers which are predominantly amorphous. For the fractionation of these latter by means of crystallization at low temperatures, from solutions in ethyl ether, fractions were isolated which showed a high content of 1,4 cis units, with fusion temperatures of -1°C approximately, and the tendency to crystallize under extension at ambient temperatures. The stereoisomeric structure of such fractions is compared with that of 1,4 cis polybutadienes obtained with the system AlR_3/TiI_4.

Ohta, Nobuto and Tezuka, Takashi.
LIQUID-PHASE OXIDATION OF CYCLOHEXANE WITH AIR UNDER PRESSURE: INFLUENCE OF REACTION CONDITIONS ON THE INDUCTION PERIOD (I). OXYGEN ABSORPTION RATE AND THE FORMATION OF PEROXIDE IN THE STEADY CHAIN ADVANCING PERIOD (II). INFLUENCE OF REACTION PRESSURE AND TEMPERATURE ON THE COMPOSITION OF OXIDATION PRODUCT (III). [1959] 22p. 10 refs.
Order from SLA mi$2.70, ph$4.80 59-17283

Trans. of Kogyo Kagaku Zasshi (Japan) 1954, v. 57 [no. 9] p. 641-643 and [no. 10] p. 723-728.

The relation was studied between the reaction conditions of oxidizing cyclohexane with air and a Co catalyst at 150°C under 8.0 to 23.4 atm and the oxidation

products. The curve of total production of cyclohexanol and cyclohexanone vs time showed a maximum and its value was higher under higher pressure, but the total yield was always lowered with the progress of the reaction, except in the initial stage of the reaction under high pressure when it was constant, and its maximum value was higher under lower pressure. When the oxygen partial pressure was equalized, similar results were obtained by using oxygen, instead of air. The formation of decomposed gas was always small. For the purpose of manufacturing cyclohexanol and cyclohexanone, from the consideration of both the reaction rate and the composition of the product, a suitable reaction temperature range is above 140° and below 170°C.

Palm, V. A.
FUNCTION OF THE ACIDITY OF THE SYSTEM H_2SO_4-HSO_3Cl. [1958] 7p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-10549

Trans. of *Akad[emiya] Nauk SSSR. Doklady, 1956, v. 108 [no. 2] p. 270-273.

The function of the acidity for the system H_2SO_4-HSO_3Cl was studied using the indicators, p-nitrochlorobenzene, 2, 4-dinitrotoluene, and p-nitrotoluene. Their absorption spectra showed that 100% HSO_3Cl is 70 times stronger than 100% H_2SO_4. The mixture is comparable only with oleum. It can be assumed that HSO_3Cl is one of the stronger acid catalysts.

Perlmutter, Shmuel.
PROCEDURE FOR THE PRODUCTION OF SUPERPHOSPHATE FROM CRUDE PHOSPHATES CONTAINING CALCIUM CARBONATE. [1959] [4]p. 2 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17294

Trans. of German patent application [AS] 1,007,342, cl. 16 1, Internat. cl. C 05 b, M27179 IVa/16, appl. 23 May 55, pub. and issued for public inspection 2 May 57; Applicant, the State of Israel, represented by the Prime Minister and Shmuel Perlmutter, Jerusalem (Israel).

Procedure for the production of superphosphate from crude phosphates containing calcium carbonate, the procedure is characterized by reacting, in the first stage, diluted calcium chloride solutions with sulfuric acid and separating, by filtration, the formed calcium sulfate from the solution, then by mixing in the second stage the obtained hydrochloric filtrate with such quantities of crude phosphate containing calcium carbonate that its calcium carbonate content is converted into a calcium chloride solution, which, after separation by filtration from the enriched crude phosphate, is returned into the first stage, while the crude phosphate liberated from its calcium carbonate content is converted by sulfuric acid, in a known way, to superphosphate.

Proshkin, A. A., Proshkin, V. N. and Kotova, V. N.
ATMOSPHERIC-VACUUM PIPE STILL THROUGHPUT INCREASED WITHOUT UNIT AREA INCREASE: HOW TO INCREASE THE THROUGHPUT OF ATMOSPHERIC-VACUUM PIPE STILLS WITHOUT INCREASING THEIR AREA (Kak Povysit' AVT bez Uvelicheniya Ploshchadey). 19 Feb 59 [5]p. 1 ref. AF 1255527.
Order from LC or SLA mi$1.80, ph$1.80 59-16320

Trans. of Neftyanik (USSR) 1958, no. 12, p. 15-18.

Reichherzer, R.
ON THE BEHAVIOR OF SOFTENED POLYVINYLCHLORIDE MIXTURES TOWARDS EXTRACTING AGENTS. [1959] [6]p. 4 refs.
Order from SLA mi$1.80, ph$1.80 59-15534

Trans. of Chemisches Forschungsinstitut der Wirtschaft Osterreichs. Mitteilungen (Austria) 1958, v. 12, no. 5, p. 129-131.

Remond, J.
SODIUM PERBORATE AND SODIUM PERCARBONATE [1959] 15p. 52 refs. Pa-982.
Order from SLA mi$2.40, ph$3.30 59-15166

Trans. of la Revue des Produits Chimiques (France) 1954, v. 57 [no. 1207] p. 401-404, 451-454.

Schulz, H. and Wagner, H.
SYNTHESIS AND REACTION PRODUCTS OF ACROLEIN. [1959] 50p. 131 ref. T-503.
Order from SLA mi$3.30, ph$7.80 59-17052

Trans. of Angewandte Chemie (West Germany) 1950, v. 62 [no. 5] p. 105-118.

[Shiba] T[adao] O. and Ozaki [Atsumu].
STUDY OF THE NICKEL OXIDE-SILICA SYSTEM COMBINED CATALYST. PT. I. ETHYLENE POLYMERIZATION BY HEATING UNDER A VACUUM. [1959] 11p. (2 figs. omitted) 10 refs.
Order from SLA mi$2.40, ph$3.30. 59-15943

Trans. of [Nihon Kagaku Zasshi] (Japan) 1953, v. 74, no. 4, p. 295-297.

The catalytic effect of a nickel-oxide and clay catalyst in C_2H_4 polymerization is reported. Wet clay, treated with 7N H_2SO_4 for 3 hr, was mixed with nickel oxide to give a composition 66% nickel oxide and 34% clay by weight. One g of catalyst, restored in a constant-temperature disiccator, was put in a reactor tube, heat treated under a vacuum, and reacted at 25°C. As a measure of the catalytic effect, i.e., reaction rate, the volume decrease from 30 sec to 5 min after the start of the reaction was taken in order to eliminate the volume decrease due to physical absorption immediately after the start of the reaction. With a 3-hr vacuum heat treatment, the catalytic effect showed up from 50°C. The material discharged from the clay is water. If water can be eliminated from the catalyst below 650°C, an active catalyst can be obtained without the vacuum treatment. Dehydration, which is necessary for the activation of the catalyst, proceeds from the surface of the nickel oxide in the catalyst at temperatures above 250°C. (Part of this report was given at the Catalytic Chemistry Conference in September, 1951).

Spengler, G. and Hauf, G.
ADSORPTIVE SEPARATION OF WAXES AND PARAFFIN OXIDATION PRODUCTS III. [1959] [12]p. 4 refs. T-525.
Order from SLA mi$2.40, ph$3.30 59-17067

Trans. of Fette Seifen Anstrichmittel (West Germany) 1955, v. 57 [no. 7] p. 474-478.

The principles for automatizing the method described in Fette Seifen Anstrichmittel 56: 775, 1954 were worked out on the assumption that the break through of the individual components can be followed by a change in the refractive index of the eluate. Therefore the eluent has a refractive index which differs so greatly from that of the substance to be analyzed, that with the currently used Abbé refractometer, at small concentrations, a difference can still be observed between the refractive index of the solution and that of the pure solvent. Of the common organic solvents only CS_2 has this property. An elution method is described where one does not work with a certain absorbent and several eluents, but with different adsorbents and one eluent.

Spryskov, A. A. and Yakovleva, T. I.
STUDY OF THE SULFONATION REACTION. XXXV. PREPARATION OF TOLUENE DI- AND TRISULFOCHLORIDES. [1959] 5p. 10 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15376

Trans. of *Zhurnal Obshchey Khimii (USSR) 1955, v. 25 [no. 4] p. 749-751.

Completely pure 2, 4-toluenedisulfochloride was obtained by heating recrystallized p-toluenesulfochloride with distilled chlorosulfonic acid at 145° for 30 min. It had a solubility at 20° of 73.6 g per 100 g of ether in a modified Pavlevsky apparatus. The dichloride was sulfonated with oleum by heating in a closed tube, after which chlorosulfonic acid was added. More heating at 180° for 4 hr produced 2, 4, 6-toluenetrisulfochloride with a mp of 158° to 161°. Recrystallizing twice from glacial acetic acid gave a product with a mp of 162°, or 9° higher than that quoted by P. Klason (Ber. 14: 307, 1881). The product had a solubility in ether at 20° of 0.73 g per 100 g. (See also 59-12790)

Stange, K.
EVALUATION OF MIXING-PLANT WITH THE HELP OF STATISTICAL METHODS. [1959] [12]p. 3 refs. AERE Lib/Trans 435.
Order from SLA mi$2.40, ph$3.30 59-17316

Trans. of Chemie-Ingenieur-Technik (West Germany) 1954, v. 26, no. 3, p. 150-155.

Formulas are developed which measure the efficiency of mixing machines.

Tsiyrbe, Ye. K. and Romankov, P. G.
INVESTIGATION OF THE PROCESS OF STEAM DISTILLATION. [1959] [11]p. (2 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-17226

Trans. of Zh[urnal] Prik[ladnoy] Khim[ii] (USSR) 1958, v. 31, no. 12 [p. 1817-1823].

In addition to the generally known factors, the amount of vapor of the distilling liquid which unites with the steam blown through the liquid exercises an influence on the hydrodynamic conditions of the bubbling process in steam distillations. In the process of steam distillation by bubbling of steam through liquid, the following hydrodynamic conditions occur: the bubble state; the foam state; and the jet state. In the bubble process, the entrainment of the distilling liquid into the distillate in the form of droplets, depends not only upon the shape of the distillation apparatus, but also upon the hydrodynamic conditions. The entrainment assumes the greatest proportions in the jet state.

Weber, Heinrich.
THE PREPARATION OF CYCLODODECATRIENE-1,5,9. [1959] [56]p. 21 refs.
Order from SLA mi$3.60, ph$9.30 59-15396

Trans. of German mono. Die Isomeren Cyclododecatriene-1,5,9, Recklinghausen, 22 Aug 1958.

Experiments performed by the method of Dr. Wilke of the Max Planck Institute in Mülheim, Ruhr showed that cis, trans, trans-cyclododecatriene-1,5,9, (CDT) may be formed from butadiene with yields up to 80% with the aid of the catalyst system $Al(C_2H_5)_2Cl/TiCl_4$. With $Al(C_2H_5)_3$/chromyl chloride a mixture of cis, trans, trans-CDT and the trans, trans, trans-isomer is formed. The latter, with m.p. 34°C, can be separated from the former, m.p. -19°C, by crystallization. Depending on the reaction conditions, 1-vinyl-cyclohexene-3, cis, cis-cyclooctadiene-1,5, cyclohexadeca-tetraene-1,5,9,13, isomeric C_{16} hydrocarbons, as well as oligomer and high polymer polybutadienes are formed besides the CDT. The decomposition reaction of the crude CDT was studied. An examination of the thermal behavior of CDT showed it to be stable up to 300°C. The reactions were also tested in an industrial model.

Civil Engineering

Barlyayev, K. M. and Pozdnyakov, N. G.
PROSPECTS FOR A FURTHER INCREASE IN THE PRODUCTION OF EQUIPMENT FOR THE BUILDING-MATERIALS INDUSTRY AND THE BUILDING INDUSTRY. 23 June 59, 13p. (9 figs. omitted) 2 refs. JPRS: L-915-D.
Order from OTS $0.50 59-11559

Trans. of Stroitel'noye i Dorozhnoye Mashinostroyeniye (USSR) 1958 [v. 3] no. 6, p. 26-32.

Berzruk, V. M
SOIL-CEMENT MIXES; A NEW STRUCTURAL MATERIAL. [1958] 30p. 30 refs.
Order from LC or SLA mi$2.70, ph$4.80 59-10782

Trans. of mono. Cement Concrete in Road Construction, Moscow, 1950, p. 143-172.

Stabilized soils, are recommended, as foundations for important pavements (asphalt and concrete), as well as for light traffic pavements. Stabilized soils can be used on various paving jobs in place of crushed stone or gravel foundations or of a sand base. The degree of strength and water durability of stabilized soil depends basically on the properties and content of cement material. The more reactive the cementing material and the higher its content, the higher will be the strength of the stabilized soil. The feasibility of an artificial control of the physico-mechanical properties of stabilized soil by means of selection of content and reactivity of cement creates conditions which guarantee a specified strength. Laboratory tests of soil-cement, using cements treated according to S. V. Shestoperov's method, indicate that their use insures a high mechanical strength even at relatively low cement contents (6 to 10%). At low cement contents (2 to 4%) soil acquires water durability and satisfactory strength, conditions which do not obtain when conventional cement is added to soil. The interaction of soil with cement may have a positive, negative or neutral character. Variation of the colloidal properties of soil in the direction favorable to interaction with cement considerably increases the strength of stabilized soil. Microscopic studies show that during stabilization of finely dispersed soils individual particles as well as soil microaggregations participate in the reaction. The cementing material becomes distributed in the soil-cement mass as a latticed soil-cement skeleton with thin films enveloping the microaggregations of the soil. In the presence in the soil of a water resistant microstructure the specific surface of finely disperse soils becomes considerably reduced and, consequently, the effectiveness of cement utilization is correspondingly increased.

Chwalla, Ernst.
STABILITY OF VERTICALLY LOADED RECTANGULAR FRAMES (Die Stabilität Lotrecht Belasteter Rechteckrahmen). [1959] 17p. (equations 17 figs. omitted) 5 refs.
Order from SLA mi$2.40, ph$3.30 59-17186

Trans. of der Bauingenieur (Germany) 1938, v. 19 [no. 5/6] p. 69-75.

When a symmetrically built frame is loaded with vertical forces distributed symmetrically with respect to center line, then a symmetrical equilibrium configuration is produced which becomes unstable when a certain load is reached. Under this critical load the frame buckles in its plane, and an asymmetric (antimetric) deformation configuration is superimposed on the symmetric equilibrium configuration. The resulting situation corresponds to a special type of solution in the framework of the stability theory, because, despite the high bending moments at work in the symmetric equilibrium, there exists in that situation a well defined branching point of elastic equilibrium. The existence of this branching point is proved and an approximation method is proposed for calculating buckling-proof frames.

Eckert, Hermann.
WHEELED GRADING APPARATUS, tr. by J. C. Levy. 31 Mar 59, 3p. (1 illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14702

Trans. of German patent 922,158, cl. 84d. gr. 1/06, pat. from 20 June 52, filing announced 13 May 54, granting announced 25 Nov 54, pub. 10 Jan 55, by Carl Kaelble G. m. b. H., Germany).

For the purpose of assisting its forward movement, the grader is equipped at its rearward end with a supporting member which is connected with the chassis by means of supporting arms which are adapted as pushrods and are capable of swinging in a vertical plane. The supporting arms are adapted as pressure (or servo) cylinders which are capable of swinging in a vertical plane on the chassis and whose push rods (or connecting rods) are in engagement with the supporting member. The supporting member is adapted as a second leveling blade. Both leveling blades are connected with the chassis adapted as pushrods, so that both leveling blades may serve alternately as a supporting member according to the direction of movement of the apparatus.

Moretto, Oreste.
FOUNDATIONS FOR LIGHT BUILDINGS ON ACTIVE CLAYS (Fundación de Edificios Livianos sobre Arcillas Activas). [1958] [16]p. 3 refs. Trans. no. 3520.
Order from SLA mi$2.40, ph$3.30 59-10826

Trans. of Congresso Brasileiro de Mecânica dos Solos 1. Anais, 1954, v. 2, p. 119-131.

The phenomenon of the expansion of soils is described as it occurs in nature, originating in both vertical and horizontal movements. The disturbance introduced in the rhythm of such movements when the soil surface is covered by an impermeable light element, such as a highway or a light dwelling building, gives rise to a difference of phase between the movement of the covered and the uncovered part of the soil surface. This difference distorts the light structures and cracks them. In highly expansive soils cracking of buildings develops into features that are typical: it is composed of a series of vertical, horizontal and inclined cracks. The expansion of soils also heaves the floors, cracking them.

Electrical and Electronic Engineering

AUTOMATIC ELECTRIC REGULATOR, tr. by J. C. Levy. 16 Jan 59, 10p. (9 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12924

Trans. of German patent 685,659, class 21h, group 13/10, pat. in Germany from 21 Aug 36, granting of pat. announced 30 Nov 39, pub. 21 Dec 39, by Schäffer & Budenberg G.m.b.H., Magdeburg-Buckau.

*ELEKTRICHESTVO (USSR) 1959, NO. 3, P. 1-96 (Electricity). [1959] 1v. SOV-105-59-3-(1-27)/27.
Order from OTS $0.80, $4.50/6 mo. PB 141 098T-12
Foreign $1.05, $6.00/6 mo.

Consists of abstracts in English.

*ELEKTROSVYAZ' (USSR) 1959 [V. 13] NO. 1, P. 3-80 (Electrical Communications). [1959] 1v. SOV-106-59-1-(1-12)/12.
Order from OTS $0.60, $3.50/6 mo. PB 141 099T-12
Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

NEW SEMICONDUCTOR DEVICES. 20 May 59, 7p. JPRS: L-789-N.
Order from OTS $0.50 59-13532

Trans. of Radio, Moscow (USSR) 1958, no. 11, p. 59-60.

RADIO COMMUNICATION CENTERS IN THE USSR: LISTED BY LOCATION AND DESIGNATION. 29 May 59 [18]p. 162 refs. AF 1255832.
Order from LC or SLA mi$2.40, ph$3.30 59-16964

Trans. from Soviet open sources, 1949-1959.

The purpose of this report is to contribute information relating to Soviet locational policy and practice as pertains to mainline radio facilities, and to indicate the major subject areas in which these facilities are to be studied.

RADIO COMMUNICATION RECORDS WON BY AMATEURS: ASSAULT OF NEW RECORDS (Na shturm novykh Rekordov). An Outline. 20 Mar 59 [8]p. AF 1255657.
Order from LC or SLA mi$1.80, ph$1.80 59-16434

Trans. of Radio [Moscow] (USSR) 1958, no. 12, inserted supplement between p. 32-33.

A tabulation.

TELECOMMUNICATIONS, 1958 [VOL. 12] NO. 1, P. 1-111. Mar 59, 1v.
Order from PP $30.00/year ($15.00/year to individuals)

Trans. of Elektrosvyaz' (USSR) 1958 [v. 12] no. 1, p. 3-80.

Alekseyev, D.
MINIATURE SOURCES OF ENERGY (Malogabaritnyye Istochniki Energii). 21 Apr 59, 3p. AF 1255714.
Order from LC or SLA mi$1.80, ph$1.80 59-16475

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 11 Mar. p. 2.

Brief descriptions are presented of a miniature galvanic dry cell, a miniature nuclear power battery, and a miniature silver-plate battery which were developed by the Nauchno-issledovatel'skiy institut istochnikov toka.

Braude, B. V.
CONCERNING AN ERROR WHICH APPEARS WHEN THE METHOD OF INTEGRAL EQUATIONS IS USED IN ANTENNA THEORY. [1959] [7]p. 3 refs. AF-9.
Order from LC or SLA mi$1.80, ph$1.80 59-16707

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 10, p. 1819-1824.

Bykhovskiy, Ya.
COMMUNICATIONS AND TELEMECHANICS AT THE VOLZHSKAYA GES (HYDROELECTRIC POWER STATION). 20 May 59, 5p. JPRS: L-787-N.
Order from OTS $0.50 59-13530

Trans. of Radio, Moscow (USSR) 1958, no. 11, p. 12-13.

Dassler, Adolf.
POSITIVE AND NEGATIVE ELECTRODES FOR ALKALINE STORAGE CELLS, tr. by J. C. Levy. 25 Feb 59, 5p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-14212

Trans. of German patent 899,216, cl. 21b, gr. 25/03, pat. from 2 Dec 51, filing announced 12 Mar 53, granting announced 29 Oct 53, pub. 10 Dec 53, by Accumulatoren-Fabrik Aktiengesellschaft, Hagen.

Positive and negative electrodes, respectively, for alkaline storage cells, are described which do not develop any hydrogen (or oxygen) in the case of continuing flow of the discharge current beyond their reversal of polarity. Besides the regular active material normally employed in these electrodes for alkaline cell elements, additional materials such as cadmium oxide, cadmium hydroxide, iron hydroxide and so forth, or nickel-(2)-hydroxide, copper powder and so forth, are present in sufficient quantity, and which, after exhaustive discharge of the regular material takes place, are subjected to electrochemical reduction (or oxidation), thus suppressing the development of hydrogen and/or oxygen that would otherwise set in directly following the reversal of polarity.

Dubnik, S., Kashcheyev, B. L. and others.
SYSTEM OF PROTECTION FROM PULSE NOISE IN APPARATUS FOR RECORDING METEOR ACTIVITY. 25 Feb 59, 5p. (5 figs. omitted) 4 refs. JPRS: L-656-N.
Order from OTS $0.50 59-13221

Trans. of *Radiotekhnika i Elektronika (USSR) 1958 [v. 3] no. 11, p. 1379-1383.

Fel'd, Ya. N.
DIFFRACTION OF ELECTROMAGNETIC WAVES BY A SEMI-INFINITE GRATING, tr. by Morris D. Friedman. 4 May 59, 15p. 3 refs. TF-15.
Order from LC or SLA mi$2.40, ph$3.30 59-16563

Trans. of *Radiotekh[nika] i Elektr[onika] (USSR) 1958, v. 3, no. 7, p. 882-889.

A method is proposed which permits reduction of the problem of wave diffraction by a semi-infinite grating to an inhomogeneous Hilbert problem which is solved in quadratures. When the calculation of the latter becomes awkward, the problem is reduced to a variational problem and is solved by using a series expansion in special polynomials.

Foltzik, R.
EXPERIMENTS WITH HEAVY SURGE CURRENTS: LOADING OF METALLIC CONDUCTORS WITH HEAVY SURGE CURRENTS. [1959] [12]p. (11 figs. omitted) 13 refs.
Order from SLA mi$2.40, ph$3.30 59-15574

Partial trans. of unidentified German mono. from Siemins-Schuckertwerke AG-Berlin.

Laboratory experiments with current surge generators have shown that it is possible to imitate the current density of natural lightning with a high degree of approximation. Because of the relatively small voltage of the surge generator, only short insulation paths could be broken down. The effects of the artificially produced lightning flash on easily inflammable materials, trees, wooden poles, and brick work were similar to those caused by natural lightning strokes. Small, but heavy destruction with explosive character can occur as a result of the thermodynamic behavior.

Gersh, S. Ya. and Arkharov, A. M.
HORIZONTAL CENTRIFUGAL RECTIFIER. 13 July 59, 22p. 19 refs. JPRS: L-1757-D.
Order from OTS $0.50 59-11689

Trans. of Kislorod (USSR) 1958 [v. 11] no. 5, p. 1-10.

In the process of working on new deep freezing units, there arose the necessity of creating small-dimensional rectifying set which could operate under conditions of vibration, under oscillation, and in a tilted position at angles of up to 45 or 50°C. In the unit developed there exists only a forced movement of the liquid phase.

Ipatov, P. M.
THE EFFECT OF THE DAMPER WINDING ON THE e.m.f. OF THE SYNCHRONOUS GENERATOR. [1959] [10]p. 2 refs. A.C.S.I.L. Trans. no. 1063.
Order from LC or SLA mi$1.80, ph$1.80 59-17049

Trans. of *Elektrichestvo (USSR) 1957, no. 3, p. 24-27.

The presence of a damper winding in synchronous machines practically eliminates tooth harmonics caused by the open stator slots together with higher harmonics. However, harmonics due to the damper winding may appear. For whole numbers of slots per pole and phase the most dangerous harmonics are of the order $6q \pm 1$ and $(2\tau/t_2) \pm a$ where these are odd numbers. The pitch and numbers of the damping winding bars for whole numbers of slots per pole and phase, fractional numbers of slots per pole and phase of the type $b + \frac{1}{2}$ and also for $(bd + c) < 9$ must conform to the conditions:

$$t_1 > t_2;$$

$$(n - 1)\, t_2 = [6kq/(6q + 1)]\, t_1;$$

$$(2\tau/t_2) - (6q \pm a) > 2q + l;$$

and for a minimum value of

$$\sin (\pi/2)\beta\, [(2\tau/t_2) \pm a]$$

where l and a are extremely small whole or fractional numbers. For a fractional number of slots per pole and phase for $(bd + c) > 9$ the pitch of the damper windings t_2 must be equal to the stator slot pitch t_1 to avoid losses in the damper winding.

Kazanskiy, N.
ULTRASHORT WAVES FOR AIRCRAFT TO GROUND RADIO-TELEPHONE COMMUNICATIONS: WITH A RADIO STATION IN THE AIRCRAFT (S Radiostantsiyey na Samolete).
9 Mar 59 [2]p. AF 1255611.
Order from LC or SLA mi$1.80, ph$1.80 59-16457

Summary trans. from Sovetskiy Patriot (USSR) 1958, 12 Nov. p. 4.

The establishment of a new distance record (285 km) for radiotelephone communication by amateur operators within the 144- to 146-mc band is reported.

Kocherzhevskiy, G. N.
RADIATION FROM A SLOT WHICH HAS BEEN CUT IN AN IDEALLY CONDUCTING CIRCULAR DISC. [1959] [9]p. 4 refs. AF-18.
Order from LC or SLA mi$1.80, ph$1.80 59-16715

Trans. from Radiotekhnika (USSR) 1955, v. 10, no. 4.

Rigorous formulas are derived for the directivity patterns of a slot cut in a circular disc which has finite dimensions. Directivity patterns are computed in the equatorial and meridianal planes of an elementary slot which has been cut in the center of the disc.

Kotel'nikov, V. A.
ON THE CAPACITY OF THE "ETHER" AND WIRES IN ELECTRICAL COMMUNICATION.
25 May 59, 26p. 2 refs. TK-66.
Order from LC or SLA mi$2.70, ph$4.80 59-16566

Trans. of unidentified Russian mono. 1933.

Material to the 1st All-Union Convention on Questions of Technical Reconstruction of Communication Matters and the Development of the Electronics Industry, 1933; Radio Section.

Langer, Max.
ADJUSTMENT OF TRAFFIC AND LOSSES AND DETERMINATION OF THE OVERALL LOSSES. [1959] 7p.
Order from SLA mi$1.80, ph$1.80 59-15449

Trans. of Teleteknik. English Ed. (Denmark) 1957, v. 1, no. 1, p. 121-123.

For determination of the overall loss of several ranks of selectors the form $V = \sqrt{\Sigma V_i^2}$ is suggested, and this is applied to some practical problems.

Levin, M. L.
THEORY OF SLOT ANTENNAS IN A ROUND WAVEGUIDE. [1959] [19]p. 7 refs. AF-1.
Order from LC or SLA mi$2.40, ph$3.30 59-16699

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1951, v. 21, no. 7, p. 772-786.

Radiation from a system of slots cut in an ideally conducting surface of an infinite waveguide having a circular cross section was investigated in the papers by Pistol'kors (Zhur. Tekh. Fiz. 17: 365 and 377, 1947). We return to this problem because in the indicated papers only the radiation characteristics were found but not the external radiation conductances which must be known in order to determine the wave mode inside the waveguide (i.e., in order to match the slot antenna to the waveguide). In addition, certain results of the second paper by Pistol'kors devoted to the radiation from transverse slots are in error. The correct formulas for this case are derived in this present paper.

Locher, K.
METHOD OF MEASURING THE FLEXIBILITY OF STRANDS, CABLES AND CORDS (Verfahren zur Messung der Flexibilität von Litzen, Kabeln und Leitungsschnüren) tr. by H. E. Nowottny. 24 Feb 59 [16]p. 1 ref.
Order from SLA mi$2.40, ph$3.30 59-15618

Trans. of Assoc[iation] Suisse des Electriciens. Bulletin, 1958, v. 49, no. 9, p. 408-412.

Flexibility is defined as the reciprocal of the modulus of rigidity. The measuring device consists of a solid base which carries a rotating head into which one end of the specimen is clamped with its axis horizontal. The vertical deflection of the free end of the specimen is then noted for several angular positions and the average taken. Exact and approximate formulas are derived which enable the flexibility to be determined from such measurements.

Mack, H.
A SELECTIVE TUBE VOLTMETER FOR THE VERY HIGH FREQUENCY RANGE. [1958] 17p. 6 refs.
Order from SLA mi$2.40, ph$3.30 59-10978

Trans. of Elektronische Rundschau (Germany) 1957, v. 11, no. 4, p. 102-105.

Meinke, H.
A NEW WAY TO THE SOLUTION OF THE BROAD-BAND ANTENNA PROBLEM (Ein Neuer Weg Zur Loesung des Problems der Breitbandantenne). [1958] 35p. 36 refs.
Order from LC or SLA mi$3.00, ph$6.30 59-12158
F-TS-9513/V.

Trans. of NTZ; [Nachrichtentechnische Zeitschrift] (West Germany) 1957, no. 12, p. 594-601.

The possibility is considered and a design is suggested for an antenna that is inherently matched in wide band to the wave resistance of the feeder cable without any additional connections. The design is based on the principle of the heterogeneous transmission guide. The discussion is presented under the following headings: (1) The antenna as a wave transformer, (2) physics of the wave-type transformation, (3) the curvilinear system of coordinates of a cylindrico-symmetrical omnidirectional antenna, and (4) the physical interpretation of wave equations. (See also 59-12160)

Meinke, H.
SYNTHESIS OF LOSS-FREE QUADRIPOLES FROM LINES WITH LOCUS-DEPENDENT WAVE RESISTANCE (Synthese Verlustfreir Vierpole aus Leitungen Mitortsabhaengigem Wellenwiderstand). [1958] 17p. 12 refs. F-TS-9515/V.
Order from LC or SLA mi$2.40, ph$3.30 59-12160

Trans. of NTZ; [Nachrichtentechnische Zeitschrift] (West Germany) 1956, no. 10, p. 457-461.

Mikayelian, A. L.
MAGNETOOPTIC PHENOMENA IN A RECTANGULAR WAVEGUIDE FILLED WITH ELECTRON GAS. [1959] [12]p. 8 refs. AF-24.
Order from LC or SLA mi$2.40, ph$3.30 59-16721

Trans. of Radiotekhnika (USSR) 1955, v. 10, no. 9, p. 3-13.

Phenomena are examined which occur in a rectangular waveguide that is filled with an electron gas which is subjected to the effects of a constant magnetic field oriented perpendicular to the direction of wave propagation. Equations are derived for the propagation constants of electromagnetic waves of different types for the cases when the electron gas completely fills the waveguide, and when it partially fills the waveguide. In the latter case the difference is shown in the propagation constants of waves which travel in opposite directions; this phenomenon permits the creation of a waveguide rectifier system.

Model', A. M.
PROPAGATION OF PLANE ELECTROMAGNETIC WAVES IN A SPACE WHICH IS FILLED WITH PLANE PARALLEL GRIDS. [1959] [8]p. 2 refs. AF-26.
Order from LC or SLA mi$1.80, ph$1.80 59-16697

Trans. of Radiotekhnika (USSR) 1955, v. 10, no. 6, p. 52-57.

Neyman, M. S.
COUPLING WAVEGUIDE SYSTEMS THROUGH APERATURES IN SIDEWALLS. [1959] [9]p. 1 ref. AF-28.
Order from LC or SLA mi$1.80, ph$1.80 59-16688

Trans. of Radiotekhnika (USSR) 1954, v. 9, no. 2, p. 5-12.

Equivalent circuits are analyzed for various types of simple and combined coupling systems. Methods are given for computing the parameters of the equivalent circuits. The examinations are based upon the previous concept (Radiotekhnika USSR v. 5 no. 5, 1950) of waveguides in the form of equivalent transmission lines with longitudinally distributed constants for every regular wave mode. The longitudinal span of the aperatures is assumed to be small in comparison to a wavelength.

Sayanagi, Kazuo.
OPTICAL NOISE FILTER. [1959] [24]p. 12 refs. Trans. T-3031.
Order from SLA mi$2.70, ph$4.80 59-15722

Trans. of [Oyô Butsuri] (Japan) 1958, v. 27, no. 10, p. 623-632.

Information is presented on the change of the response function due to optical noise, amplitude noise, phase noise and the applications of phase noise filters to the filtering of periodic structures such as screen dots or scanning lines in TV.

Schönberg, Heinz.
CONTACT RESISTANCES OF CLAMPS AND CONNECTORS FOR OVERHEAD LINES (Übergangswiderstände an Klemmen und Verbindern für Freileitungen) [1959] [17]p. 3 refs. (foreign text included).
Order from SLA mi$2.40, ph$3.30 59-15175.

Trans. of Elektrotechnik (Germany) 1952, v. 6, no. 3, p. 115-118.

Shchekin, V.
SOLAR BATTERIES (Solnechnaya Batareya) tr. by B. W. Kuvshinoff. 17 Apr 59 [6]p. TG 230-T65.
Order from OTS $0.50 59-21047

Trans. of Radio [Moscow] (USSR) 1958, no. 8, p. 29-[30].

Sivers, A. P. and Suslov, N. A.
RADAR INTERFERENCE AND COUNTERMEASURES (Pomekhi Radiolokatsii i Metody Bor'by s Nimi). 11 May 59, [7]p. (6 figs. omitted). AF 1255780.
Order from LC or SLA mi$1.80, ph$1.80 59-16338

Trans. of excerpt from mono. Osnovy Radiolokatsii (Radar Fundamentals) Moscow, 1956, p. 179-184.

Solov'yev, E. G.
CIRCULAR AND RECTANGULAR WAVEGUIDES WITH LONGITUDINAL IRISES. [1959] [5]p. 2 refs. AF-31.
Order from LC or SLA mi$1.80, ph$1.80 59-16691

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 4, p. 707-710.

The propagation of electromagnetic waves in circular and rectangular waveguides with longitudinal irises which are distributed periodically is studied. The problem is solved by the method of meshing the fields at the boundary of two regions. The electric field between irises is approximated according to the traveling-wave law. One of the dispersion equations which are obtained for the propagation constant is analyzed for the case when the wavelength in the waveguide is many times greater than the length of the period of the irises.

Styrikovich, M.
PROSPECTS FOR THE DEVELOPMENT OF THERMAL ELECTRIC POWER IN THE USSR. 22 July 59, 15p. JPRS: 827-D.
Order from OTS $0.50 59-11722

Trans. of Planovoye Khozyaystvo (USSR) 1959, no. 1, p. 53-64.

Subbotin, A.
AUTOMATION OF TELEGRAPH COMMUNICATIONS (Avtomatizatsiya Telegrafnoy Svyazi). 16 Apr 59 [4]p. AF 1255704.
Order from LC or SLA mi$1.80, ph$1.80 59-16474

Summary trans. of Voyennyy Svyazist (USSR) 1958, [v. 16] no. 7, p. 31-33.

Telengator, E.
REQUEST FOR SMALLER AND MORE ACCURATE TESTING AND MEASURING EQUIPMENT (Vypuskat' Malogabaritnuyu i Sovershennuyu Kontrol'no Izmeritel'nuyu Apparaturu). 9 Mar 59, 2p. AF 1255609.
Order from LC or SLA mi$1.80, ph$1.80 59-16456

Summary trans. from Sovetskaya Aviatsiya (USSR) 1959, 20 Jan, p. 2.

"The instruments produced by Soviet industry are not small enough and are unwieldy in use..." (Perhaps this explains why the Russians build such large satellites.)

Tolkachev, S.
TRANSPORT OF A 63.5 TON LOAD ON A SPECIAL TRAILER (Perevoska Gruza Vesom 63.5 t na Spetsyal'nom Pritsepe) tr. by EH. [1959] [3]p. (2 figs. omitted). H-2625.
Order from OTS $0.50 59-11915

Trans. of Avtomobil'nyy Transport (USSR) 1958 [v. 36] no. 3 [p. 8].

Trofimov, K. N.
RADAR, tr. by H. H. [1959] [82]p. (48 figs. omitted). H-3199.
Order from OTS $2.25 59-21083

Trans. of mono. Radiolokatsiya, Moscow, 1957.

Vaynshteyn, L. A.
IRISES IN WAVEGUIDES. [1959] [8]p. 4 refs. AF-33.
Order from LC or SLA mi$1.80, ph$1.80 59-16693

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 5, p. 841-846.

By means of methods which have been used before in the theory of diffraction at the open end of a waveguide (Izvest. Akad. Nauk SSSR Ser. Fiz. 12: 144, 1948) a rigorous computation of single-sided irises in a rectangular waveguide is developed (inductive and capacitive irises); these irises are assumed to occupy one-half of the cross section of the waveguide. A comparison is made between the accurate results which are obtained by our method and the approximate results which are cited in the literature.

Wallauschek, Richard.
ULTRAHIGH FREQUENCY WIDE-BAND DELAY LINE UTILIZING A HELIX AND BASICALLY FOR USE IN TRAVELLING-WAVE AMPLIFIER TUBES. 2 Dec 58, 5p. (9 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12499

Trans. of French patent 1,005,700, group 12, class 4, appl. 9 Sep 47, granted 26 Dec 51, pub. 15 Apr 52.

A delay line arrangement is suggested constituting a structural element of a traveling-wave tube and characterized by a helix unit forming a delay line and by a return conductor which creates a capacity between the helix and the conductor. For a frequency lower than the helix cutoff frequency, the line characteristic impedance passes through a minimum corresponding to a lowering of the power transmitted at a level which is still satisfactory insofar as the conditions desired for the transmission curve are concerned. The helix is mounted in a metal cylinder which forms the return conductor, and which is capable of adjustable eccentricity in respect to the helix, so as to permit variations in the transmission curve.

Wey, Emil.
SWISS RADIO TELEPHONE SYSTEM FOR MOVING VEHICLES; PROBABILITY OF ESTABLISHING CONNECTIONS. [1959] 15p.
Order from SLA mi$2.40, ph$3.30 59-10853

Trans. of P. T. T. Bulletin (Switzerland) 1957, v. 35, no. 9, p. 387-395.

The probability of getting through a call to a moving vehicle is shown to depend on the propagation and on the distribution of the field. The calling system is described and the minimum field intensity required for operating the receiver is determined. The probability that this minimum value will be exceeded is then determined on the basis of the measured statistic field distribution. Special attention is devoted to the influence of the difference in transit time within the overlap area between the cities of Zurich, Lucerne, Soleure, and Basle. The probability of establishing connections is concluded to be quite good in all regions of Switzerland north of the Alps.

Yoshida, Tomio.
ON THE SCALING OF HIGHER QUALITIES OF STEREOPHONIC SOUNDS. Rept. I. [1959] 13p. 14 refs.
Order from SLA mi$2.40, ph$3.30 59-17245

Trans. of Nihon Onkyo Gakkaishi (Japan) 1958, v. 14, no. 2, p. 170-174.

The concepts of quality which were considered included vividness, clearness, separation of each sound from numerous sound sources, separation of the signal from noise, and the feelings of offensive reverberation, presence, and distance of the sound source. Seven varieties of reproduction were tested: a 2-channel reproduction, a 1-channel 2-speaker reproduction, and five mixed 2-speaker reproductions. Data obtained with five women subjects using "paired comparisons" were tabulated by Thurstone's method. The results indicate the range of superiority of 2-channel reproductions over 1-channel.

Mechanical Engineering

PROCESS AND APPARATUS FOR VENTILATING ROOMS, tr. by J. C. Levy. 20 Jan 59, 5p. (4 figs. omitted).
Order from LC of SLA mi$1.80, ph$1.80 59-12922

Trans. of German patent 260,295, class 36d, group 5, pat. from 10 Apr 12, pub. 24 May 13, by Firma Rud. Otto Meyer, Hamburg.

Mouchel, René.
INFRARED RADIANT PANEL 30 Dec 58, 6p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12616

Trans. of French patent 1,127,936, gr. 15, cl. 2, appl. 13 June 55, granted 20 Aug 56, pub. 27 Dec 56.

A radiant panel for heating by gaseous combustibles is described. It is a closed box into which a conduit admits a mixture of combustible gas and primary air. One of the faces of the box is formed by a filter continued by several perforated metal plates placed at short distances apart. The space between them is closed laterally by a tight frame, and the last sheet on the side opposite the box is nonoxidizable and constitutes the radiating surface. The holes in the sheets or plates have decreasing dimensions, starting with the box and are such that the passage speed of the gas through them is greater than or equal to the speed of propagation of the flame in the gas used.

Nikander, B.
ASPECTS OF DURABILITY OF LININGS IN ROTARY CEMENT KILNS. [1959] 13p. 20 refs.
Order from SLA mi$2.40, ph$3.30 59-17230

Trans. of Radex-Rundschau (Austria) 1957, no. 7, p. 861-867.

The durability of kiln linings depends on the interplay of one constructive factor (ring formation) and several destructive factors (high temperature, temperature variations, chemical reaction, and deformations of the kiln shell).

Ordnance, Missiles, and Satellite Vehicles

ARTIFICIAL EARTH SATELLITE OBSERVATIONS. Selected Translations from Soviet-Bloc International Geophysical Year Literature. 29 July 59, 23p. (2 figs. omitted) 1 ref. JPRS: 822-D.
Order from OTS $0.75. 59-11743

Trans. of Astronomicheskiy Tsirkulyar (USSR) [1958] no. 190, p. 3-5, 11-16 and no. 191, p. 3-9.

Contents:
Camera for photographing the satellite, by A. M. Lozinskiy, V. V. Podobed, A. N. Smirnova, and V. A. Sulin
Simple method for rapidly determining the approximate coordinates of artificial earth satellites from photographs taken by the NAFA ZS/25 Camera, by D. D. Polozhentsev
Questions on the rotation of Sputnik II, by V. P. Tsesevich, Ye. A. Satanova, and V. M. Grigorevskiy
Approximate prediction of the ephemerides of artificial earth satellites, by D. Shchegolev
Change in the brightness of Sputnik II, by E. A. Satanova and V. M. Grigorevskiy
On the rotation of Sputnik II around its axis, by V. P. Tsesevich
Scheme for sending signals during visual observation of an artificial earth satellite, by E. Zablovskis, E. Gravitis
Attachment for the AT-1 Telescope for determining horizontal coordinates of the artificial earth satellite, by G. I. Karatayev
Equipment for photographing an artificial earth satellite, by Ye. Kramer
Improving the operation of the signal device in artificial earth satellite observations, by N. Papazyan, B. Tumanyan

THE MOTION OF AN ARTIFICIAL SATELLITE IN THE NONCENTRAL GRAVITATIONAL FIELD OF THE EARTH IN THE PRESENCE OF ATMOSPHERIC RESISTANCE. [1959] 12p. (1 diagram omitted) 4 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-16759

Trans. of unidentified Russian article.

ON LAUNCHING A COSMIC ROCKET TOWARD THE MOON: EXCERPTS (O Zapuske Kosmicheskoy Rakety v storonyu Luny). 3 Jan 59, [3]p. AF 1 255 442.
Order from LC or SLA mi$1.80, ph$1.80 59-16412

Trans. from Pravda [Moscow] (USSR) 1959, no. 3, p. 1.

PHOTOGRAPHIC TRACKING OF ARTIFICIAL SATELLITES IN THE USSR. 18 May 59 [19]p. 43 refs. AF 1255812.
Order from LC or SLA mi$2.40, ph$3.30 59-16481

Trans. from Soviet open sources, 1957-1959.

An examination of Soviet open sources for 1958 indicates that Soviet scientists do not consider that their tracking system is adequate. The fact that aerological and meteor stations have been pressed into service and the programs of the visual observation stations have been expanded to include photographic tracking and change of brightness studies can be taken as evidence of the fact that they are trying to expand their satellite tracking effort on all fronts. (See also 59-18458)

PHOTOGRAPHIC TRACKING OF ARTIFICIAL SATELLITES IN THE USSR: SUPPLEMENT. 3 June 59 [16]p. (1 fig. omitted). AF 1255842.
Order from LC or SLA mi$2.40, ph$3.30 59-18458

Trans. of mono. Byulleten' Stantsii Opticheskogo Nablyudeniya Iskusstvennykh Sputnikov [Zemli] (Bulletin of Optical Observation Stations of Artificial Earth Satellites) No. 2, Moscow, 1958.

See also 59-16481 to which the above is a supplement.

SOVIET SATELLITE TRACKING EFFORT. Preliminary rept. 3 Feb 59 [21]p. (1 fig. omitted) 11 refs. AF 1255504.
Order from LC or SLA mi$2.70, ph$4.80 59-12949

Trans. from Soviet open sources, 1957-1959.

Discussions are presented on (1) the organization of the optical observation program, (2) the network of stations in the USSR, (3) the observation stations in Soviet bloc countries, (4) the training of personnel for observations (5) the procedure for visual observations, (6) station equipment, (7) the results of operation of the stations, (8) the provision of the stations with time signals, (9) photographic observations, and (10) other methods and devices. The 5 appendixes give lists of the visual and photographic observation stations, data on the observation of satellites, the deviation of individual observations, and some results of the observation of Sputnik II.

SOVIET SPACE ROCKET (Sovetskaya Kosmicheskaya Raketa) 26 Jan 59 [21]p. (7 figs. omitted).
AF 1 255 477.
Order from LC or SLA mi$2.70, ph$4.80 59-16407

Trans. from Pravda, [Moscow] (USSR) 1959, 12 Jan. p. 1, 3-4.

The following features of the Soviet space rocket (the first "lunar probe") launched on Jan. 2, 1959 are discussed: (1) The flight of the rocket; (2) the last stage of the rocket and the container with scientific apparatus; and (3) the complex of equipment for observing its flight, measuring the parameters of its orbit, and for receiving the data transmitted from it.

Becker, Kurt and Kommnick, Joachim.
HAND GRENADE LINER OF NON-FERROUS METAL, tr. by CP. 19 Feb 59, 3p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14209

Trans. of German patent 727, 800, Class 72 d, Gr[oup] 17-02, to Eugen Arndt, Berlin-Reinickendorf; patented from 1 Sep 37, pub. 12 Nov 42.

The new liner is distinguished from previous ones in that the lining grating consists of a mixture of 33 parts of graphite and 20 parts of finely ground mica powder to which are added 30 parts of a fire-proof binding agent, for example water-glass with dissolved metal oxide, enriched with 5 parts of colophony powder and 10 parts of zinc dust.

Kimblad, F. V. and Nordgren, J. L.
EXPLOSIVE IGNITION PROCESS AND IGNITER THEREFOR. 3 Dec 58, 2p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12498

Trans. of French patent 982, 837, group 14, class 3, appl. 11 Mar 49, granted 31 Jan 51, pub. 15 June 51, appl. in Sweden 3 Apr 48, by Aktiebolaget Bofors, Sweden.

Kriksunov, V.
THE INTERCEPTION PROBLEMS OF INTER-CONTINENTAL MISSILES, tr. by W. L Rumer. 11 Nov 58 [10]p. T-105.
Order from LC or SLA mi$1.80, ph$1.80 59-18505

Trans. from Sovetskaya Aviatsiya (USSR) 1957, 25 Apr.

Topics discussed included: (1) the detection of missiles in flight, (2) the problems of interception and destruction of missiles, and (3) the antiballistic missile.

Okhotsinskiy, D. E. and Eneyev, T. M.
CERTAIN VARIATIONAL PROBLEMS CONNECTED WITH LAUNCHING OF AN ARTIFICIAL EARTH SATELLITE. [1959] 34p. (12 figs. omitted).
Order from LC or SLA mi$3.00, ph$6.30 59-16768

Trans. of Uspekhi Fiz[icheskikh] Nauk (USSR) 1957, v. 63, no. 1, p. 5-16.

The subject of the investigation is the law of the change in time of the direction of thrust jet motors, in order to ensure the launching of the satellite in the prescribed orbit with a minimum fuel consumption. It is assumed that the launching will take place with the aid of a rocket accelerator consisting of one or two stages. Calculations are also made to determine the most advantageous rate of fuel consumption.

Okhotsimskiy, D. Ye., Yeneyev, T. M. and Taratynova, G. P.
DETERMINING THE LIFETIME OF AN ARTIFICIAL EARTH SATELLITE AND AN INVESTIGATION OF SECULAR PERTURBATIONS OF ITS ORBIT. [1959] 22p.
Order from LC or SLA mi$2.70, ph$4.80 59-16767

Trans. of unidentified Russian article.

Voronovskiy, D. D.
LONG RANGE ROCKETS (Dal'noboynyye Rakety). 29 Apr 59, [3]p. AF 1255764.
Order from LC or SLA mi$1.80, ph$1.80 59-16443

Trans. of mono. Material'naya Chast' Artillerii Boyepripasy i Pribory (Materiel of Artillery, Ammunition and Equipment) 1958, p. 120-123.

General information is presented regarding missiles and their classification with respect to propellant, design, guidance systems, destination, etc. The Honest John is presented as an example of a missile launched from a mobile vehicle, the Nike as an example of an AA missile. The first ICBM is reported to have been successfully tested in the USSR in 1957.

Ship Building

ATOMIC ICEBREAKER "LENIN". 21 May 59, 13p. (10 figs. omitted) JPRS: 1591-N.
Order from OTS $0.50 59-13527

Trans. of Sudostroyeniye (USSR) 1959, no. 1, p. 26-33.

A complete description is given of the atomic icebreaker "Lenin" which is in mooring tests at present. The basic elements of the vessel are: water displacement, 16,000 tons; maximum length, 134 m; width 27.6 m, maximum draft, 9.2 m; power, 44,000 hp; speed in water alone, 18 knots.

Aleksandrov, Afrikantov, and others.
THE ATOMIC ICEBREAKER "LENIN" (Atomnyy Ledokol Lenin) tr. by H. H. [1959] [29]p. (18 figs. omitted). H-3715.
Order from OTS $0.75 59-21082

Trans. of *Atomnaya Energiya (USSR) 1958 [v. 5, no. 3] p. 257-276.

Toselli, Giuseppe.
SIGNALLING AND FIRST AID DEVICE FOR A SUNKEN SUBMARINE, tr. by M. V. Delgade. Nov 58, 12p. (7 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-12105

Trans. of Italian industrial patent 281639, class VIII, appl. 8 Aug 29, issued 19 Jan 31.

FOOD, HANDLING, AND PACKAGING EQUIPMENT

Food

METALLIC COOKING VESSEL WITH IMPROVED HEAT TRANSFER, tr. by P. C. C. 24 Mar 59, 3p. (1 illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14695

Trans. of German patent 336,029, cl. 34, gr. 1, pat. from 24 July 19, pub. 21 Apr 21, by Deutsche Waffen- und Munitionsfabriken, Germany.

The bottom of the vessel is provided with a heat resistant and strongly adhesive coating of higher radiant-heat absorptivity than the metal which forms the vessel. The coating is black or dull in order to increase the radiation absorptivity.

PROCESSING OF PRESERVING THE AROMATIC SUBSTANCES OF DRY SOLUBLE EXTRACTS OF ROASTED COFFEE SUBSTITUTES, tr. by J. C. Levy. 30 Jan 59, 3p.
Order from LC or SLA mi$1.80, ph$1.80 59-12930

Trans. of Swiss patent 217,126 (addition to patent 201,940) class 34d, appl. 7 Mar 38, registered 30 Sep 41, pub. 16 Jan 42, by Société d'Études et Applications Industrielles, Lausanne.

Alferov, V. V.
CONFERENCE ON THE USE OF ANTIBIOTICS IN THE FOOD INDUSTRY (Soveshchaniye po Primeneniyu Antibiotikov v Pishchevoy Promyshlennosti). [1959] 10. Trans. A-1028.
Order from LC or SLA mi$1.80, ph$1.80 59-16822

Trans. of Akademiya Nauk SSSR. Izvestiya. Seriya Biologicheskaya, 1958, v. 23, no. 5, p. 625-628.

Papers are summarized which reported on research into the possibilities of prolongation of storage periods for perishable food products such as fish, meat, and tomatoes by the use of antibiotics. Biomycin appears to have been the antibiotic used most extensively: the preparation is used by surface application, by addition to ice blocks, or (in the case of meat) by injection into the animal before slaughter. Conference members noted the need for the development of new antibiotics suitable for use in food preservation.

Brunelet, [L.] and Vidal [Pierre].
RESEARCH ON THE EFFECT OF FREEZING MEAT BEFORE GAMMA RADIATION. June 59, 6p. (6 figs. omitted).
Order from OTS $0.50 AEC-tr-3690

Trans. from mono. Recherches sur l'Influence de la Congelation des Viandes Avant Irradiation par les Rayons Gamma, Moscow, 1958.

Fink, Hermann, Schlie, Ilse and others.
CONTRIBUTION TO THE PROBLEM OF PRODUCING "NECROSIS-FREE" SKIM MILK POWDER (Zum Problem der Herstellung "Nekrosefreier" Magermilchpulver). [1959] [3]p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-17097

Trans. of die Naturwissenschaften (Germany) 1958, v. 45, p. 166.

Since 1949, 60 skim milk powders (49 roller powders and 11 spray powders) originating from various domestic and foreign drying plants have proved poisonous to 900 experimental animals (rats). Operating conditions in some of the plants are very carefully controlled. Therefore it is concluded that the relationship between operating conditions and necrogenity is more complicated than is generally assumed. (See also 59-17099, 59-17100, 59-17301)

Kandror, I. S.
STANDARDIZATION OF THE FOOD RATION BY SEASON AND CLIMATIC ZONE. 20 July 59, 6p. 13 refs. JPRS: L-1777-D.
Order from OTS $0.50 59-11703

Trans. of Voprosy Pitaniya (USSR) 1958 [v. 17] no. 3, p. 9-12.

This discussion relates primarily to observations in the Soviet Arctic.

Shchennikov, S. T.
ABOUT THE VETERINARY-SANITARY INSPECTION (EXPERTISE) OF BIRD CARCASSES (O Veterinarnoy-sanitarnoy Ekspertize Tushek Ptits). 26 Jan 59, 8p. Trans. V1373.
Order from LC or SLA mi$1.80, ph$1.80 59-14227

Trans. of Veterinariya (USSR) 1956, v. 33, no. 8, p. 57-60.

A revision of inspection practices and regulations is proposed, with particular reference to the danger of transmission to human beings of psittacosis, paratyphoid, pullorum infections, pseudoplague, and tuberculosis through consumption of diseased poultry.

MACHINERY, FABRICATION, AND ACCESSORY EQUIPMENT

CIRCULATION PUMP, tr. by P. C. C. 19 May 59, 6p. (1 illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-16854

Trans. of Swiss patent 284, 177, cl. 101b, appl. 10 Oct 49, recorded 15 July 52, pub. 17 Nov 52, by E. M. B. Elektromotorenbau AG. Birsfelden.

This pump is characterized in that the securing elements are engaged in threaded holes extending through the entire thickness of a flange that is cast integrally with the central support, the thickness of which is practically the same throughout. This arrangement avoids the tiny internal cracks and metal porosity, caused by alternate heating and cooling, which frequently allow passage of the compressed liquid contained in the support, and thus result in flooding of the excitation windings.

SOVIET MACHINE BUILDING: SELECTED TRANSLATIONS, NO. 2. 23 July 59, 89p. (13 figs. omitted) 11 refs. JPRS: 1798-N.
Order from OTS $2.25 59-13737

Trans. of selected articles from Russian literature.

Contents:
Machine tools, machine tool building in 1959-1965
Chemical machinery, nitrogen installations
Extraction equipment
  Insertable expansion drilling bits
  Coal machinery in the Ukraine
  New shallow-reach coal complex
Electrical and power equipment
  The steam turbines of the Khar'kov Turbine Plant
  Transformer substations
  Hydrogenerator insulation
  New electrical products
Instruments
  Hydrometeorological instruments
  Medical instruments
  Gauges and measuring devices

Lübcke, Ernst.
NOISELESS FAN. 19 Jan 59, 5p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12923

Trans. of German patent 662, 032, class 27c, group 11 04, pat. from 29 Mar 35, pub. 2 July 38, by Siemens-Schuckertwerke Akt.-Ges., Berlin-Siemensstadt.

Rodionov, N. S.
RESULTS FROM EXPERIMENTAL WORK OF DRILLING BOREHOLES WITH SMALL DIAMETER BITS. 10 Mar 59, 5p. (3 figs. omitted) JPRS: L-680-N.
Order from OTS $0.50 59-13280

Trans. of Razvedka i Okhrana Nedr (USSR) 1958, [v. 24] no. 9, p. 22-25.

Tanaka, Tatsuo.
DESIGN OF CLOSED CIRCUIT GRINDING INSTALLATIONS. [1959] 13p. 5 refs.
Order from SLA mi$2.40, ph$3.30 59-15069

Trans. of Zement-Kalk-Gips (West Germany) 1957, v. 11, no. 9, p. 396-408.

See also 59-15068

Engines and Propulsion Systems

Rouzet, Lucien.
SYSTEM OF AERIAL SUSTENTATION, tr. by J. C. Levy. 12 Feb 59, 14p. (9 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-14204

Trans. of French patent 586, 375, Group VI, Class 4; applied for 5 Dec 23, granted 3 Jan 25, pub. 25 Mar 25.

The system of aerial lift is characterized by the development of centrifugal reactions on curved surfaces with recovery of the expended kinetic energy in order to provide the movement of air necessary for development of the reaction. The curved surfaces are associated with channels at whose extremities aerial turbines (impellers) are disposed for producing the movement of air and for recovering the kinetic energy.

Fabritz, G.
CONTROL OF GAS TURBINES (Regelung von Gasturbinen). 30 Aug 56, 9p. 2 figs. omitted) 5 refs.
Order from SLA mi$1.80, ph$1.80 59-17178

Trans. of Regelungstechnik (West Germany) 1955, v: 3, no. 11, p. 266-268.

Perel'man, R. G.
ENGINES FOR GALACTIC SPACE SHIPS (Dvigateli Galakticheskikh Korabley). 8 Jan 59 [6]p. (4 illus. omitted) AF 1225410.
Order from LC or SLA mi$1.80, ph$1.80 59-16451

Summary trans. of Nauka i Zhizn' (USSR) 1958, no. 7, p. 60-64.

Machine Parts and Mechanisms

STANDARD GAGE FOR ADJUSTING LIMITING DIMENSIONS, ESPECIALLY FOR ADJUSTING SCREW THREAD TOLERANCES, tr. by J. C. Levy. 12 Mar 59, 4p. (6 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14689

Trans. of French patent 904, 509, gr. 12, cl. 3, appl. 22 May 44, granted 5 Mar 45, pub. 8 Nov 45 (appl. filed in Germany 10 Mar 43) by Bauer & Schaurte, Germany.

The gage is characterized in that the diametral graduation of several adjusting cylinders is grouped into a single measuring piece as a cylindrical disc that is divided by recesses in its periphery into several cylindrical segments such that each pair of diametrically opposed segments thereof has a fixed diameter.

VALVE COCK FOR BOTTLE REFILLING (Robinet a Soupapes pour le Remplissage des Bouteilles). [1959] [6]p. F-TS-9508/V.
Order from LC or SLA mi$1.80, ph$1.80 59-12155

Trans. of French patent 616804, gr. XX, cl. 4, appl. 29 May 26 approved 2 Nov 26, pub. 9 Feb 27, by United Thirion and Barbou Plants, France.

CHANGE SPEED GEAR WITH PROGRESSIVE ACTION, tr. by C. P. 21 Jan 59, 4p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12917

Trans. of French patent 61,097 (1st addition to patent 1,004,738, 29 Dec 49) gr. 3, cl. 3, appl. 29 Nov 50, granted 6 Oct 54, pub. 23 Mar 55, by Sebal, Seine, France.

The invention is concerned with a special method of realization of the progressive change gear which is the object of the main patent. The braking is exerted on the driving or large module pinion of the first gear system so as to compel the transmission to follow the path of the unbraked pinions which are connected with reduction.

Bensinger, Wolf-Dieter and Wente, Adolf.
NOISELESS GEAR WHEELS, ESPECIALLY FOR THE TRANSMISSION ON NONUNIFORM TURNING MOMENTS, tr. by J. C. Levy. 7 July 59, 5p. (5 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-18789

Trans. of German patent 834,799, cl. 47b, gr. 23, pat. from 13 May 50, filing of pat. appl. announced 9 Aug 51, granting of pat. announced 21 Feb 52, pub. 24 Mar 52, by Daimler-Benz A. G., Stuttgart-Untertürkheim, Germany.

At least one of the toothed wheels that are in engagement with each other is provided in the region of the gear meshing with a ring or annularly divided elements of elastic material, e.g., rubber, on which the counter (mating) toothed wheel moves in rolling contact. The rolling contact takes place in or approximately in the rolling (pitch) circle diameter.

Haas, Alexander.
ZIGZAG SEWING MACHINE, tr. by PCC. 20 Feb 59, 9p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14220

Trans. of Swiss patent 300,900, Class 22a; applied for 25 Aug 53, recorded 31 Aug 54, pub. 1 Nov 54.

The sewing machine is provided with devices for controlling the length of the stitch and the lateral deflections of the neddle bar in accordance with different pattern control sequences. The machine is characterized by a universal pattern in the form of a disk driven by the main drive shaft, each side of the said disk being provided with a group of pattern-sequence curved tracks, and by two followers, each of which can be adjusted as desired to follow one of the pattern-sequence curved tracks of the group of curved tracks assigned thereto, mechanical means being provided for the transmission of the movements of one of the followers to stitch-length controlling devices and the movements of the other follower to devices controlling the needle bar vibrations.

Leduc, A. E.
STUDY OF COMBUSTION IN GAS PRESSURE-REDUCTION VALVES, tr. by K. S. Bevis. [1959] [12]p. 3 refs.
Order from SLA mi$2.40, ph$3.30 AEC-tr-3422

Trans. of Z[éitschrift] für Schweisstechnik (Switzerland) 1955, v. 45, no. 11, p. 239-245.

Martin, Ludwig.
BRAKE ENGAGING AUTOMATICALLY ON THE FAILURE OF THE MOTOR TORQUE FOR ELECTROMOTIVELY DRIVEN HOUSEHOLD APPLIANCES. 13 Jan 59, 3p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12925

Trans. of German patent 922922, class 47 c, gr. 17 01, pat. 27 Oct 51, pub. 27 Jan 55, by Licentia Patent-Verwaltungs-G. m. b. H., Hamburg.

Mornico, M.
MAINTENANCE OF CIRCULAR SAW BLADES (Entretien des Lames de Scies Circulaires). [1959] [8]p
Order from SLA mi$1.80, ph$1.80 59-15457

Trans. of Centre Technique du Bois [Paris] Service des Recherches et Essais (France) 1957; p. 1-5.

A saw blade that is to function well must be well set, levelled, and prestressed. Levelling of a saw consists in removing any warping and bulges, whether these are localized (bumps) or extend over a certain length. Prestressing consists in elongating the metal of certain portions of the blade to improve its resistance to the centrifugal force developed by the speed of rotation and enable it to overcome the resistance the timber offers to being cut. The stress is evaluated by measuring the gap between the surface of the blade near the central hole and the edge of a straight edge extending over the whole diameter of the blade.

Manufacturing Equipment and Processes

HARD METAL CONTAINING SEVERAL METAL CARBIDES, ESPECIALLY FOR MOLDS OR MACHINE TOOL PARTS. [1959] 8p.
Order from LC or SLA mi$1.80, ph$1.80 59-15090

Trans. of German patent 160,172, appl. 9 Dec 31, pub. 15 Aug 40, by German High-Grade Steel Works, Inc., Krefeld (Priority: German Republic, 22 Aug 31).

The metal is characterized by a content of one or more carbides of the fourth, and one or more carbides of the sixth group of the periodic system. The carbides of the fourth group are present in amounts of 39 to 90%, those of the sixth group in amounts of 30%. All carbides are present in the form of solid solutions. The remainder of the alloy consists of a secondary metal of the sixth or the eighth group, either singly or severally. The hard metal has the following composition: 55 to 70% zirconium carbide or titanium carbide, 15 to 30% molybdenum carbide, and 8 to 15% nickel and a chromium content of up to 7%.

LIGHT INDUSTRY: SELECTED TRANSLATIONS AND EXTRACTS. 6 Mar 59, 76p. (diag. omitted) JPRS: 1315-N.
Order from OTS $2.00 59-13262

Trans. of Chung-kuo Ch'ing Kung-yeh (Chinese People's Republic) 1958, no. 19, p. 3-5, 10-16 and 22-26; no. 20, p. 2-5, 16-17 and 20-21.

Detailed plans are presented for construction and operation of a small-scale paper mill, a crude glass factory, and a ceramic alcohol distillation tower. The short supply of materials is reflected in the substitution of ceramics or of bamboo for conventional metals. Rice straw has increased in value through utilization of this product in paper manufacture.

SOVIET MACHINE BUILDING: SELECTED TRANSLATIONS NO. 1. 27 July 59, 31p. JPRS: 1797-N.
Order from OTS $1.00 59-13736

Trans. of selected portions from 6 Russian periodicals.

Information is presented on new types of motor vehicles, the development of bus production, new designs of metal rolling equipment, and new electrical products.

USSR INDUSTRIAL EQUIPMENT (TRANSPORTATION, CONSTRUCTION, PRODUCTION, AND POWER MACHINERY) [NO. 12, 3 AUG 59]. [1959] [42]p. 125 refs.
Order from LC or SLA mi$3.30, ph$7.80 59-18843

Trans. of unevaluated information selected from Russian-language publications.

Contents:
Transportation equipment: motor vehicles
- General
- Passenger cars
- Buses
- Trucks
- Motor vehicle plants
- Parts and equipment plants
- Bicycles, motorollers, and motorcycles

Construction machinery
- Excavators
- Cranes and hoisting machines
- Road machinery
- Materials handling equipment

Production machinery
- Machine tool industry
  - Abrasives
  - Plant information
  - Automatics and automatic lines
  - Lathes
  - Milling and boring machines
  - Other machine tools
- Presses and foundry machinery

Power machinery
- Turbines
- Electrical equipment
  - General
  - Generators
  - Motors
  - Converters and condensers
  - Transformers
  - Switchgear

Anders, W.
WELDING OF THICK AND LARGE SOLID SECTIONS IN THE ABSENCE OF ELECTRIC ARC BY MEANS OF THE ELECTRO-SLAG PROCESS (Das Lichtbogenlose Schweissen Dicker und Grosser Kompakter Querschnitte mit der Elektro-Schlacke-Schweissung) [1959] [30]p. (23 figs. 16 tables omitted) 6 refs.
Order from SLA mi$2.70, ph$4.80 59-17311

Trans. of Schweissen und Schneiden (West Germany) 1957, v. 9, no. 1, p. 12-24.

Information is presented which was obtained from the book Electro-slag welding process, published in 1956 by the E. O. Paton Institute for Electric Welding, Kiev; from othe published references; from experience in using Soviet slag-welding equipment that was made available to the Central Institute of Welding Techniques of Eastern Germany; from personal discussions with Prof. B. E. Paton; and from communications with the designer of the electro-slag equipment, Dr. Sevbo of the Paton Institute. The information is arranged under the following headings: (1) The characteristics and operational aspects of the electro-slag welding process; (2) Operating conditions of the electro-slag welding process; (3) Welding flux and welding rods; (4) Welding equipment; (5) Welding seam shapes of the electro-slag welding process; (6) Welding data and characteristic values of the electro-slag welding process; (7) Electro-slag welding of cylindrical seams; (8) Electro-slag welding of solid cross sections of large dimensions; (9) Electro-slag process in built-up welding; (10) Metallurgical phenomena in a melt bath and mechanical properties of the welds obtained by the electro-slag process; (11) Electro-slag welding of high-strength steels; (12) Electro-slag welding of austenitic steels; (13) Electro-slag built-up welding of high speed steels, and (14) Value and significance of the electro-slag process in the future technical development of welding.

Berges, Karl.
THREAD ROLLING MACHINE WITH TWO THREAD ROLLS, tr. by F. H. B. 6 Apr 59, 5p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-16177

Trans. of German patent 420,232, cl. 7 f, gr. 9, pat. from 24 Feb 22, pub. 19 Oct 25, by Walter & Berges Maschinenfabrik, Gevelsberg.

The machine is characterized in that the width of the crests on the rolls decreases toward one or both ends of the roll axes. To the curved part of the the rolls a concentric element for smoothening and leveling the rolled thread is attached in peripheral direction.

Eidenfeldt, K. G.
ARRANGEMENT FOR A SOFA BED WHOSE SEAT CAN BE DRAWN FORWARD. [1959] [3]p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-17313

Partial trans. of Swedish patent 108293, cl. 34, gr. 12-02, granted 22 June 43, valid 10 Aug 42, pub. 24 Aug 43, registered 10 Aug 42 (no. 4967/1942).

As a characteristic feature of the invention, the seat, near each of the end panels of the sofa-bed, rests or glides with its back portion upon an approximately horizontal pin or a similar device, while its front portion is connected with the corresponding end panel of the sofa-bed by means of a swinging link or a similar device in such a way that the seat, when pushed to its back position (the sofa position), slants down backwards, while it assumes a horizontal, or nearly horizontal, position when pulled forward, thus forming a support for the bed mattress. A convenient form of the seat is a frame made of angle iron and either covered with steel-wire net or filled in some similar way; its farther portion rests on the pin which projects inside the bed-sofa from a fitting attached to the corresponding panel of the bed-sofa and is provided with a head preventing the seat from gliding off the pin. One end of the swinging link is connected with a fitting which is attached to the corresponding panel of the bed-sofa, while its other end is connected with the seat frame in such a way that the swinging link comes to support the seat frame only when the latter is pushed back to its backward-slanting position.

Filippenko, S. V. and Zagurny, S. I.
AUTOMATIC SLAG BUTT WELDING OF 150-425 mm. TUBES. [1959] [3]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15766

Trans. of Energomashinostroyeniye (USSR) 1957 [v. 3] no. 7, p. 31-32.

A new method of automatic slag welding of small-diameter tubes is described which has been introduced at Podol'sk Machine-Building Works. Tubes of set length and diameter with prepared bevels at the ends are fed to a jig, where the welding of the butt is carried out. The ends of the tubes are turned into a bowl-shaped finish. The assembly of the butt of the tubes or tube with a bottom is done either on a backing-ring placed underneath or on a "spigot", with provision for the clearance between the truncation of the edges to be butted together. The assembled butt is tacked in 3 or 4 places by electrodes of type E-42 or E-42A. The clamps are placed evenly along the perimeter of the butt. The assembled butts of the chamber are carefully cleaned of slag and other impurities at the places of the clamps are, after which they are fed to the driving roller bearing of the automatic welding plant. The butt is welded without the machine being stopped until the seam is finally filled up. Every layer which is applied to the division is cleared of slag in the process by a pneumatic chisel. As the layers are being applied, the tip orifice is periodically lifted up by a turn of a hand wheel. Starting from the third or fourth layers, the electrode wire is moved from the axis of the weld division 3 to 4 mm alternately to the left and the right to fill the seam evenly in a "fir tree" herringbone design. When the filling of the division is finished, the welding is finished off and the surface of the seam which results is cast with smooth junctions to the base metal. During the welding or after it has been finished, the flux wastes with the slag are sifted through a vibration sieve and are used again.

Hine, Fumio.
THE CASE FOR ALUMINUM. Rept. no. 2 on Electrolytic Polishing by Alternating Current. [1959] 6p. (3 figs. omitted) 2 refs.
Order from SLA mi$1.80, ph$1.80 59-17179

Trans. of Electrochemical Society of Japan. Journal, 1949, v. 17, p. 52-53.

A good metal surface of Al with gloss can be obtained by using an electrolysis solution of concentrated sulfuric acid-citric acid system, and by conducting alternating-current electrolysis with an electrode insoluble in this solution as the anode; particularly, when Pb is used the current direction will be changed and the effect will be even better. This method may be used for Al and all its alloys, although better results are obtained with regard to samples of low purity rather than high purity, and to alloys rather than the pure metal. This is attributed to the fact that when the purity is high the passage of current is hindered more than necessary, and as a result the rectifying action is diminished. This does not pose much of a problem with Pb electrode is used. Then Al of high purity is electrolyzed by direct current under these conditions, very good results will be obtained. (See also 59-17181 and 59-17183)

Hine, Fumio,
THE CASE FOR NICKEL, PART 2. Rept. no. 3 on Electrolytic Polishing by Alternating Current. 12 July 56, (2 figs. omitted) 1 ref.
Order from SLA mi$1.80, ph$1.80 59-17181

Trans. of Electrochemical Society of Japan. Journal, 1949, v. 17, no. 6, p. 120-121.

A more effective method of electrolytic polishing by alternating current with a sulfuric-citric acid electrolyte was found than that previously reported (Electrochem. Soc. Japan, Journal 17: 67, 1947). Aluminum is used as the active electrode. A lead electrode with an active layer (obtained by electrolyzing with aluminum as the active electrode) was used to overcome the defect that the temperature of rectification destruction

is lower than the optimum polishing condition. The optimum conditions are 70°C, 10 amp/sq dm, and 5 to 15 sec. (See also 59-17179 and 59-17183)

Hine, Fumio.
POLISHING OF COPPER AND COPPER ALLOYS. Rept. no. 4 on Electrolytic Polishing by Alternating Current. 12 July 56, 7p. (3 figs. omitted) 3 refs.
Order from SLA mi$1.80, ph$1.80 59-17184

Trans. of Electrochemical Society of Japan. Journal, 1949, v. 17, no. 9, p. 204-205.

The electrolytic polishing by alternating current is made possible by the use of a phosphoric acid system. Addition of glycerine and Cu ions give good results by raising the viscosity and preventing the dissolution of copper. The electrolytic polishing does not take place at low voltages. In the case of brass, the surface becomes coarse because of the dissolution of Zn at high voltages. An active lead peroxide electrode acts as a rectifying active electrode in a phosphoric acid bath. The optimum conditions are 15 to 16 v, 30°C, 10 to 40 sec. (See also 59-17179)

Malyshev, A. I.
PRODUCTION OF TITANIUM [AND] TITANIUM AND ITS ALLOYS 15 May 59, 10p. (figs. omitted). JPRS: L-775-N.
Order from OTS $0.50 59-13499

Trans. of mono. Tekhnologiya Metallov i Aviatsionnyye Materialy (Technology of Metals and Aviation Materials) Moscow, 1957, p. 51-53, 173-176 and 187-191.

Margulis, D. K. and Kholmogortsev, Yu. P.
FORCE AND STABILITY RELATIONSHIPS IN HIGH-SPEED DRILLING OF CAST IRON. [1959] [9]p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15781

Trans. of Vestnik Mashinostroyeniya (USSR) 1957 [v. 37] no. 4, p. 41-47.

Tests on drills made of 45Kh steel with R_C hardness of 45 to 50 were used to determine force and stability relationships. In studying force relationships consideration was given to (1) the effects of feed, drill diameter, and wear of drill on axial force, torque, and effective power, and (2) the effects of the recessing of the transverse cutting edge and the velocity of cutting on the axial force. In the determination of stability relationships consideration was given to (1) wear of drill and blunting criteria, (2) the effect of the diameter of the drill, the feed, and the velocity of cutting on the endurance of drills, and (3) the effect of the hardness of the cast iron on the cutting velocity in drilling.

Outin, Jean, Leiris, M. H. de and Bensimon, M. R
APPLICATIONS OF THE SOLEX MICROMETER TO INDUSTRIAL METROLOGY (Applications du Micromètre Solex à la Métrologie Industrielle). III. APPLICATION OF THE SOLEX MICROMETER TO THE STRENGTH OF MATERIALS (Application du Micromètre Solex à las Résistance des Matériaux) IV. APPLICATION OF THE SOLEX MICROMETER TO THE STUDY OF CUTTING BY TOOLS (Application du Micromètre Solex à l'Étude de la Coupe des Outils) V. Papers 3-5 on Pneumatic Metrology: The French Metrological Instrument "The Solex Pneumatic Micrometer". [1959] [27]p. (13 figs. omitted) 8 refs.
Order from SLA mi$2.70, ph$4.80 59-17015

Trans. of Mécanique (France) 1937 [v. 21, no. 271] p. 69-83.

Translation of three of the six papers presented before the Mechanical Precision and Hetrology section, on February 24, 1937.

Pervitskiy, Yu. D.
COLD PRESSURE WELDING. [1959] [7]p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15864

Trans. of Priborostroyeniye (USSR) 1958, no. 5, p. 26-29.

Discussions are presented on the nature and technology of cold pressure welding, the strength of the resulting welds, and the necessary equipment and instruments.

Tikhonov, A. N. and Shvidovskiy, E. G.
THEORY OF CONTINUOUS CASTING (K Teoriy Nepreryvnogo Slitka). [1959] 7p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-17040

Partial trans. of Zhurnal Tekhnicheskoy Fiziki (USSR) 1947, v. 17 [no. 2] p. 161-[176].

Tonn, Willi and Günther, Heinrich.
PRACTICAL TESTING TIN-LEAD SOLDERS. [1959] 7p. (6 figs. omitted) 8 refs.
Order from SLA mi$1.80, ph$1.80 59-17280

Trans. of Z[ei]ts[chrift] f[ür] Metallkunde (Germany) 1936 [v. 28] p. 237-239.

Verdickt, J.
MANUFACTURING OF SEAMLESS STEEL PIPES BY STIEFEL'S PROCEDURE (La Fabrication des Tubes d'Acier sans Soudure par le Procédé Stiefel). [1959] [26]p. (17 figs. omitted).
Order from SLA mi$2.70, ph$4.80 59-17106

Trans. of la Technique Moderne (France) 1958, v. 50, no. 9, p. 395-401.

Vorkauf, Heinrich.
PROCESS OF MAKING COOLED HOLLOW BLADES FOR GAS TURBINES, tr. by J. C. Levy. 6 Mar 59, 3p (2 figs. omitted) 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14703

Trans. of German patent 931.017, Class 46f, Group 8/03 (Addition to Patent 873,631, term commenced 14 Aug 42) patented from 30 Jan 53, filing of application announced 23 Dec 54, granting announced 30 June 55, pub. 28 July 55.

The process is characterized in that, for making the borings, the unbored blade is provided with narrow longitudinal slots that are again sealed off up to a small opening at the center of the boring that is to be made, which opening thus formed serves for guiding the borer producing the boring.

Transport, Traction and Hoist Facilities

ELASTIC WHEEL, tr. by J. C. Levy. 7 Jan 59, 5p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12921

Trans. of French patent 1,132,156, group 10, class 1, appl. 7 Oct 55, granted 29 Oct 56, pub. 6 Mar 57, by Goetzewerke Friedrich Goetze Aktiengesellschaft, Germany.

The suspension of elastic wheels is improved by providing on each side of the plane of symmetry through the wheel, between the rim and the hub thereof, at least two rubber rings which, disposed concentrically with respect to each other, have a length in the axial direction that is greater than their thickness in the radial direction. Thus the rim first transmits the load to the larger diameter rings and the latter in turn transmit the load to the smaller diameter rings by means of intercalated elements, whereafter the hub of the wheel is lastly exposed to the load. The requisite lateral stability of the wheel is obtained by means of guide rollers which withdraw at least one of the pairs of rubber rings from the operation of axial forces.

IMPROVEMENTS IN PNEUMATIC TIRES FOR VEHICLE WHEELS AND IN THEIR TREADS, tr. by J. C. Levy. 3 Apr 59, 3p. (illus. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-16171

Trans. of French patent 880,418, gr. 10, cl. 1, appl. 24 Mar 42, granted 28 Dec 42, pub. 25 Mar 43, by Peters Pneu-Renova[A]. G., Germany (appl. for registration of utility model filed in Germany 26 Apr 41).

The improvements consists mainly in that each of the notches provided in the tread between two adjacent grooves is made to communicate with a duct, the portion of which that passes beyond the edge of the tread extends to the open air, the said terminal portion of the duct preferably being oblique in relation to the direction of roll.

TOY TRUCK WITH BODY TILTABLE IN SEVERAL DIRECTIONS, tr. by P. C. C. 12 Feb 59, 3p. (4 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14211

Trans. of German patent 870,666, cl. 77f, gr. 16/09, pat. from 3 Mar 51, laid open to insp. 27 Mar 52, grant announced 5 Feb 53, pub. 16 Mar 53, by Berkenkamp & Schleuter, Germany.

TRANSPORTATION, COMMUNICATIONS, AND ELECTRIC POWER IN THE USSR [NO. 18, 30 JULY 59] [1959] [78]p. 129 refs.
Order from LC or SLA mi$4.50, ph$12.30 59-18844

Trans. of unevaluated information selected from Russian-language publications.

Contents:
Railroad Transportation:
- General operations
- Individual railroad systems
- Electrification
- Construction and installation
- Rolling stock

Maritime Shipping:
- General operations
- Shipbuilding
- Fishing fleet operations and construction

River Shipping:
Civil Air Fleet Operations:
Communications:
- Administrative affairs
- USSR communications facilities
- Union Republic communications facilities
- Radio relay lines
- Line operations
- USSR radio facilites
- Union Republic radio facilities
- Amateur radio activities
- Telephone and telegraph
- Television
- Postal communications

Electric Power:
- USSR in General
- Kazakh SSR
- RSFSR (Central and Ural)
- Tadzhik SSR
- Turkmen SSR
- Ukrainian SSR
- Uzbek SSR

André, Frédéric.
INDICATOR FOR USE ON RAILROAD LINE, tr. by J. C. Levy. 23 Dec 58, 3p. (1 fig. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-12493

Trans. of French patent 475,594, group III (Railroads and Tramways) class 1 (Road) appl. 23 July 14, granted 9 Mar 15, pub. 27 May 15.

This invention relates to a device which, fixedly attached to the locomotive, permits the engineman to know his location at any instant without being obliged to lean out. The indicator comprises a chronometer with 2 concentric dials, each of which corresponds to a half day. Along a spiral passing round these dials there is inscribed incidents existing along the line, stations, disk signals, bridges, etc., such that the engineman knows his exact location at any instant.

Froede, Walter.
PROSPECTS OF ROTARY SLIDE-VALVE CONTROL FOR AUTOMOBILES. II. (Aussichten der Drehschiebersteuerung für Kraftfahrzeugmotoren II). [1959] [25]p. 5 refs. (foreign text included).
Order from SLA mi$2.70, ph$4.80 59-17070

Trans. of ATZ [Automobiltechnische Zeitschrift] (Germany) 1955, v. 57, no. 7, p. 191-196.

The advantages which can be expected from a rotary slide-valve engine are first analyzed critically, resulting in a considerable simplification of the construction as the main argument at least for equivalent output and consumption values. The problems of a rotary slide-valve engine and methods known for their elimination are described. (See also 59-17122)

Rumyantseva, Z.
LINEAR PROGRAMMING (Lineynoye Programmirovaniye). 21 May 59 [8]p. (3 figs. omitted). AF 1255818.
Order from LC or SLA mi$1.80, ph$1.80 59-16640

Trans. of Grazhdanskaya Aviatsiya (USSR) 1958, [v. 15] no. 8, p. 35-37.

Taranov, A.
MOTOR VEHICLE TRANSPORTATION IN THE SEVEN YEAR PLAN OF 1959-1965 (Avtomobil'nyy Transport v Semiletii 1959-1965 gg) tr. by S. E. [1959] 9p. (3 illus. omitted). H-3557 A.
Order from LC or SLA mi$1.80, ph$1.80 59-16644

Trans. of Za Rulem (USSR) 1959 [v. 17] no. 1, p. 3-4.

Vasyutin, V. F., Slavin, S. V. and Vilenskiy, M. A.
PROBLEMS IN DEVELOPMENT OF INDUSTRY AND TRANSPORTATION IN YAKUTSKAYA ASSR CHAP. XV. BASIC PROBLEMS IN THE DEVELOPMENT OF TRANSPORTATION CURRENT TRANSPORTATION CONDITIONS. 22 May 59, 80p. 2 refs. JPRS: L-1677-D.
Order from OTS $2.00 59-11554

Trans. of mono. Problemy Razvitiya Promshlennosti i Transporta Yakutskoy ASSR, Moscow, 1958, Chap. 15, p. 337-340 and 345-419.

Discussions are presented on: (1) river transportation; (2) motor vehicle transportation; (3) air transportation; (4) main problems in the development of transportation in Yakutiya in the future; (5) main problems in the development of river transportation; (6) main problems in the development of motor transportation; (7) problems in railroad construction; and (8) problems in air transportation. There are 26 tables.

MATERIALS

Ceramics and Refractories

PROCESS OF MAKING PARTIALLY PERVIOUS MIRRORS, tr. by J. C. Levy. 6 May 59, 3p. 3 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16842

Trans. of German patent AS 1,013,841, cl. 32b/10, appl. announcement 14 Aug 57, by Carl Braun Camera-Werk, Nürnberg.

The reflection layer that is to be applied to the mirror body is produced by means of thermal vaporization of metals in high vacuum. The process is characterized in that a noble metal layer, which is first applied to the mirror body, is covered by a subsequently applied magnesium fluoride layer. The mirror body is exposed to an electrical glow (luminous) discharge both prior to and following formation of the layers by vaporization. Silver is employed for formation of the reflection layer. The thickness of the magnesium fluoride layer is determined by the color contrasting thereof.

Kainz, J.
THE DIELECTRIC PROPERTIES OF THE BARIUM-STRONTIUM-LANTHANUM-TITANATE SYSTEM. [1958] [20]p. (27 figs. omitted) 7 refs.
Order from SLA mi$2.40, ph$3.30 59-10629

Trans. of Deut[sche] Kerami[sche] Ges[ellschaft]. Bericht (West Germany) 1958, v. 35 [no. 3] p. 69-[77].

Khromova, Ts. S.
CERAMIC TIPS FOR GAS [-SHIELDED] -ARC APPARATUS. [1959] [3]p.
Order from LC or SLA mi$1.80, ph$1.80 59-15806

Trans. of Svarochnoye Proizvodstvo (USSR) 1957, no. 5, p. 24-25.

Tests made on insulating tips of mikrolit, pyrophyllite, cordierite and crystallo-corundum ceramic showed that the ceramic possesses good insulating properties, great strength, and thermal stability. The other three were unsatisfactory.

Kitaygorodskiy, I. I., Rishina, V. A., and Sentyurin, G. G.
PRODUCTION OF FOAM GLASS FROM EASILY-FUSIBLE CLAYS. [1959] [5]p. 6 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15810

Trans. of [Khimiko-Tekhnologicheskiy Institut] Moscow. Trudy (USSR) 1957 [v. 22] no. 24, p. 318-323.

The possibility and desirability of forming foam glass directly from raw materials without first making the glass has been demonstrated. Conditions were worked out for obtaining foam glass from easily fusible clays and the considerable effect played by fine grinding on the foaming temperature has been established. Foam glass with improved mechanical properties was obtained and can thus be used not only as a heat-insulating material but also as a weight carrying building material. The possibility of obtaining foam glass from Bun'kov clay under factory conditions has been verified. With an addition of 0.5 parts by weight of lampblack, foam glass has been obtained at a temperature of $1,020^{0}$ with a bulk density of 0.21 to 0.22 g/cc and ultimate strength under compression of 25 to 30 kg/cm^2.

Kitaygorodskiy, I. I. and Indenbom, V. L.
THE STRENGTHENING OF GLASS BY TEMPERING. [1959] 4p (3 refs. omitted) 7 refs.
Order from CCT $17.50 CCT-245TT

Trans. of [Akademiya Nauk SSSR. Doklady] 1956, v. 108, no. 5, p. 843-845.

Liberman, L. Ya. and Levin, Ye. Ye.
BRANCH CONFERENCE ON HIGH-TEMPERATURE MATERIALS. 2 Mar 59, 10p. JPRS: 1302-N.
Order from OTS $0.50 59-13249

Trans. of Energomashinostroyeniye (USSR) 1958, [v. 4] no. 11, p. 40-42.

Fuels, Lubricants, and Hydraulic Fluids

Ivanov, V. M., Kantorovich, B. V. and others.
FUEL EMULSIONS FOR COMBUSTION AND GASIFICATION. [1958] [10]p.
Order from LC or SLA mi$1.80, ph$1.80 59-10403

Trans. of Akademiya Nauk SSSR. Vestnik, 1957 [v. 27, no. 5] p. 56-59.

Previous studies have shown that furnaces can be safely operated with emulsions if the water is uniformly distributed throughout their mass. Emulsions were prepared from petroleum residua, gas generator peat tar, Cheremkhov (coal) tar and shale tar for use as fuel in a laboratory furnace. Combustion was carried out with various excess air ratios. The emulsions were preheated and ignited readily. At the end of the experiments no noticeable soot or coke was found inside nor outside of the furnace zone. The final composition of the gas at various excess ratios indicated the satisfactory state of the combustion of these emulsions. Results of experiments abroad (Finland and U. S. A.) show that gasification of atomized residua gives satisfactory results. The positive results obtained in experiments with emulsions of viscous liquid fuels indicates the need for wider research on the use of coal and water suspensions in gasification. The use of coal and water dispersions creates the possibility of erecting heavy duty, continuous process gas generators of high capacity.

Korobov, B. F. and Komarov, B. I.
EVALUATION OF THE STABILITY OF KEROSENE-TYPE FUEL BY PASSING IT THROUGH TURBOJET ENGINE FUEL PUMPS. 15 May 59 [6]p. 1 ref. AF 1255806.
Order from LC or SLA mi$1.80, ph$1.80 59-16478

Trans. of Khimiya i Tekhnologiya Topliv i Masel (USSR) 1958 [v. 3] no. 4, p. 51-54.

The circulatory pumping method of testing fuels in the fuel system of a turbojet engine makes possible a comparative evaluation of the stability of fuel samples. The method can be used in solving certain practical problems connected with jet fuels, i.e., selection of antioxidants, study of the catalytic effect of copper alloys, etc.

Losev, B. I.
SOLID GASOLINE (Tverdyy Benzin). [1958] [19]p. 1 ref.
Order from OTS $0.50 59-11999

Trans. of Priroda (USSR) 1958 [v. 47] no. 9, p. 38-44.

Gasoline briquettes containing 95% liquid gasoline and 5% of substances forming a cellular structure are discussed, together with mechanical, distillation and chemical methods for the regeneration of liquid gasoline. The briquettes can be stored and conveyed to other places without metal containers. The solid gasoline becomes liquid by pressure in a worm-type press where the solid substances are eliminated. The loss during regeneration is 2 to 3%; the quality does not change. Solid gasoline is considerably less dangerous with respect to fire. It does not spread out, and the vapors have a negligible buoyancy. The briquettes do not easily ignite, the flame spreads slowly and can be easily extinguished. In order to reduce the danger of fire with fuel to be stored, emulsifying the gasoline with soap and a minimal quantity of water, which later can be separated by a weak electric current, has been suggested. In the Vodoroslevyy institut (Algae Institute) in Arkhangel'sk, work was conducted on large-scale utilization of alginate ($C_6H_7O_6$) extracted from seaweed for foam-like substances. In 1950 data was published on storing gasoline in a solid state by aid of colloidal alginate. In 1939 and 1940 Komskiy and Fayntsimer worked out a method by which a highly concentrated gasoline emulsion was made on the basis of water-soluble albumins with a subsequent tanning in formalin. This method yielded briquettes of solid gasoline. The method is better than other foreign processes and allows the solidification of liquid oil products, vegetable oils, several medicinal substances, gases of the butane type, etc. into briquette shape. But the briquettes obtained on casein basis are not suitable for long storing periods. Therefore several water-soluble polymerized and condensed resins, such as polyvinyl alcohol and uric formaldehydes were used. If these, pure or together with casein, are mixed with liquid hydrocarbons (gasoline), a thick viscosous mass is obtained which, upon further processing, assumes the consistency of cheese. This is sufficient for shipping without special containers. P. A. Rebinder's method (Colloidal J. 8: 157, 1946) is described in detail. Research carried out in the AS USSR showed that several emulsifiers composed of polyvinyl alcohol, uric formaldehyde and casein yield the best results. The cellular structure of the solid fuel briquettes is based on the principle of synheresis. The outer appearance of the briquettes is that of a cylinder of white or yellow color. They weight 800, 400 and 200 grams and are packed in thick paper or cardboard for shipping. They can be ignited by a match and burn slowly with an even flame. One kg of the solid fuel yields 10,000 kcal of heat. These qualities rendered the solid fuel briquettes ideal for expeditions in the Caucasus, Pamirs, transpolar regions and the Antarctic.

Rozhkov, I. V. and Sablina, Z. A.
THERMAL STABILITY OF JET FUELS (Termicheskaya Stabil'nost' Topliv dlya Vrd). 6 July 59 [5]p. (5 figs. omitted). AF 1255921.
Order from LC or SLA mi$1.80, ph$1.80 59-18453

Summary trans. of Vestnik Vozdushnogo Flota (USSR) 1959, no. 2, p. 69-72.

Topchiyeva, K. V. and Moskovskaya, I. F.
THE NATURE OF THE ACIDITY OF ALUMINOSILICATE CRACKING CATALYSTS. 30 Mar 59 [9]p. 16 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-15505

Trans. of Akad[emiya] Nauk SSSR. Doklady, 1958, v. 123 [no. 5] p. 891-894.
Another translation is available from ATS $9.15 as ATS-80L30R [1959] 5p.

Aluminosilicate catalysts with increasing Al_2O_3 content were studied to determine the protonic and aprotonic acidity of the cracking catalyst. The protonic acidity was determined by exchange adsorption in solutions of the salts CH_3COOLi and CH_3COONa. The thermometric method of Trambouze was used for the aprotonic. The formation of both forms during the formation of aluminosilicate catalysts is shown by the agreement of the acid curves for cumene.

Leather and Textiles

PROCESS OF PREPARING POLYOXYAMIDES FROM AMINO COMPOUNDS WITH TWO PRIMARY AMINO GROUPS AND OXALIC ACID ESTERS OR DIVALENT OXAMIDE ACID ESTERS. 31 Oct 58, 10p. 1 ref.
Order from LC or SLA mi$1.80, ph$1.80 59-12075

Trans. of Danish patent 66,435, class 39c, group 15, pat. 27 Apr 43, pub. 15 Mar 48 (Priority claimed on basis of German appl. filed 28 Apr 42) by I. G. Farbenindustrie Aktiengesellschaft.

The process is characterized in that (1) the condensation is carried out in the presence of alcoholic hydroxyl compounds, particularly glycols whose boiling point is not more than 40°C above the melting point of the polyamide; (2) as constituents, oxalic acid esters of glycols are used; and (3) the hydroxyl compounds remain at least partly in the polyamides.

Böhringer, Hans and Holland, Fritz.
THE DEVELOPMENT AND TESTING OF PROFILED SYNTHETIC FIBERS WITH AND WITHOUT VACUOLES. [1959] [33]p.
Order from SLA mi$3.00, ph$6.30 59-17264

Trans. of Faserforschung und Textiltechnik (Germany) 1958 [v. 9, no. 10] p. 405-416.

Extensive working tests undertaken by the Institute for Textile Technology of Chemical Fibers and various other associations established the possibility of spinning synthetic fibers in any desired profile (5, 8 or 10-pointed star with solid core, sickle-shape, hollow single or multicelled cross-sections, etc.) After hardening of the polyamide spinning melt, the shape of the cross-section persists and undergoes no further change during stretching. Profiling causes a reduction of draw. The hollow fibers behave in a manner substantially different from that of the solid forms, possessing greater mobility so that flex tenacity is increased 3 times and abrasion resistance is doubled. Hollow fibers exhibit a 50% increase in crimping. The advantages of profiling and of hollow spaces outweigh the time expenditure and cost outlay. Batches produced on a large scale correspond to the requirement of the textile industry in large measure. Detailed data are given on test knits, finishing and wear. Experimental introduction of profiled hollow filament in women's stockings showed satisfactory results. Although research thus far has been limited to clothing, there are interesting possibilities in sports articles and domestic textiles. The tests were based on polyamides, especially caprolactam. Generally, the results can be referred also to polyesters.

Imoto, Tatsuya and Nakai, Yutaka.
STUDIES IN POLYVINYL CHLORIDE. XXVIII. SPECIFIC GRAVITY AND CRYSTALLINITY OF PVC FIBERS. [1959] [13]p. 10 refs.
Order from SLA mi$2.40, ph$3.30 59-15807

Trans. of [Sen-i Gakkaishi] (Japan) 1957, v. 13, no. 12, p. 808-812.

Kamogawa, Hiroyoshi.
ON THE EMULSION POLYMERIZATION OF ACRYLONITRILE WITH POLYVINYL ALCOHOL (PVA). Rept. no. 1 on Studies on Textile Finishing Agents. [1959] 12p. 11 refs.
Order from SLA mi$1.80, ph$1.80 59-17078

Trans. of Kobunshi Kaguku (Japan) 1957, v. 14, no. 141, p. 14-19.

When ammonium persulfate was used as the reaction initiator, the emulsion polymerization of AN by PVA was seen to progress more or less according to

$$-d[M]/dt = K[M]\,[I_o]\,[PVA]^{1/4}.$$

The mean degree of polymerization of the polymer produced was higher (1) the higher the monomer concentration, (2) the lower the polymerization temperature, and (3) the smaller the quantity of ammonium persulfate. In view of the fact that the polymerization speed was directly proportional to $[I_o]$ and that the mean degree of polymerization decreased in the beginning by increased PVA concentration, and in view of the velocity of the initiation reaction and the activation energy, it is considered that chain transfer of acrylonitrile with PVA should not be disregarded. (See also 59-17079)

Kamogawa, Hiroyoshi.
ON THE PROPERTIES OF THE EMULSION OF POLYACRYLONITRILE. Rept. no. 2 on Studies on Textile Finishing Agents. [1959] 14p. 5 refs.
Order from SLA mi$2.40, ph$3.30 59-17079

Trans. of Kobunshi Kaguku (Japan) 1957, v. 14, no. 143, p. 133-138.

AN emulsions were synthesized by using PVA as the emulsifier and ammonium persulfate as the reaction initiator, and their properties were investigated. At a polymerization temperature of 70°C., the viscosity demonstrated changes similar to the degree of polymerization and gave a peak-shaped curve relative to

the time. However, when the quantity of ammonium persulfate was great, a considerable lowering of the viscosity was seen during the latter period of reaction due to the degree of polymerization drop of the PVA. The size of the granules became smaller the greater the ammonium persulfate quantity, the smaller the AN quantity, and the greater the PVA quantity, and the coagulating value changed more or less correspondingly. The pH at commencement of the reaction had some influence on the properties of the emulsion, the viscosity of the emulsion being low and its stability high on the acid side. The chain transfer constant by I. P. was 1.8×10^{-3}, but the emulsion became unstable when the quantity added was great. The coagulating value was influenced appreciably by the polymerization temperature, and the protective power of PVA was greater the higher the temperature. (See also 59-17078)

Narinskaya, A. R. and Pisarenko, A. P.
FILLERS AND PLASTICISERS FOR LATEX COATINGS IN THE MANUFACTURE OF OIL CLOTH (Napolniteli i Plastifikatory dlya Lateksnykh Pokrytiy v Proizvodstve Kleyenki). June 59 [6]p. 4 refs. RTS no. 1021.
Order from LC or SLA mi$1.80, ph$1.80 59-18019

Trans. of Legkaya Promyshlennost' (USSR) 1958, v. v. 18, no. 2, p. 24-26.

Five types of latices were tested: butadiene and styrene, polystyrene, polyacrylic, polyvinyl acetate, and a latex based on a vinyl chloride/vinylidene chloride copolymer. Mineral oils and polydienes are recommended as plasticizers for the latex mixtures. Latices charged with non-staining antioxidant 2,4,6-tributyl phenol had greater light-fastness than films containing phenyl-β-naphthylamine.

Ridder, Nelly Truitje de
IRONING CLOTH FOR USE IN PRESSING GARMENTS, tr. by PCC. 13 Feb 59, 2p.
Order from LC or SLA mi$1.80, ph$1.80 59-14216

Trans. of Dutch patent 87, 310, Class 8d, 20a; applied for 24 Sep 55, granted 17 Dec 57, pub. 15 Jan 58.

The ironing cloth consists of a piece of textile material, such as cotton, which is provided with a bottom layer of gauze fabric. The gauze fabric consists of elastic plastic threads, so that no permanent deformation result from bending.

Paints and Finishes

Britzinger, H[erbert] and Weinmann, K[urt].
CONDENSATION RESINS AND THEIR USE FOR BAKED VARNISHES WITH WATER AS A SOLVENT: PT. 5. CONTINUATION AND CONCLUSION, tr. by EVR. 7 May 59, 8p. (1 table omitted).
Order from SLA mi$1.80, ph$1.80 59-15650

Trans. of Deut[sche] Farben-Z[eitschrift] (West Germany) 1954, v. 8 [no. 3] p. 88-[91].

Haug, Robert.
DETERMINATION AND SIGNIFICANCE OF PIGMENT-VOLUME-CONCENTRATION [I] tr. by EVR. 23 Jan 59, 6p. (8 figs. [introduction and refs.] omitted).
Order from SLA mi$1.80, ph$1.80 59-15670

Trans. of Deutsche Farben-Zeitschrift (West Germany) 1958, v. 12, no. 3, p. 103-[108].

A series of paints whose binders consisted of a combination of alkyd varnish and urea varnish (in a 5:1 ratio) and whose pigments consisted of iron-oxide red, talc, and zinc chromate (in a ratio of 2:2:1) was tested to determine whether the cell method of W. K. Asbeck and M. Van Loo would give a value corresponding to the critical pigment-volume concentration (CPVC) in an optional binder-pigment ratio. Paints with different PVC's were prepared from these pigments and the specified binder combinations and the CPVC of each sample was determined. A value at an optional PVC from 10 to 60% which corresponds to the CPVC of about 30% is obtained by the cell method. The CPVC of a type of pigment or pigment blend is dependent on the type of binder or even on the solvent used in dissolving the binder. The cell method is concluded to be practicable if the pigments used in the paints are not too finely divided. (See also 59-15669)

Haug, Robert.
DETERMINATION AND SIGNIFICANCE OF PIGMENT-VOLUME CONCENTRATION: CONTINUATION AND CONCLUSION, tr. by EVR. 5 Mar 59, 5p. (7 figs. 2 tables [introduction and refs.] omitted).
Order from SLA mi$1.80, ph$1.80 59-15669

Trans. of Deutsche Farben-Zeit[schrift] (West Germany) 1958, v. 12, no. 4, p. 139-143.

A series of colored varnished was prepared, which contained iron-oxide red and talc in different ratios as a pigment and KM-resin dissolved in butylacetate as a binder. Weighed portions (20 g) of colored varnish were diluted with butylacetate, centrifuged 20 min at 3000 rpm, the supernatant liquid was decanted and the precipitate stirred and transferred into a graduated centrifuge tube with 5 to 10 ml butylacetate and centrifuged 20 min at 3000 rpm and the volume of the precipate read off. Results agreed so well with the cell method that it appears possible to bypass the filtration which the cell method requires with difficult systems. The pigment system used does not show a maximum CPVC. The relationship between CPVC and gloss, hardness, and electrical conductivity was determined for a paint with a pulverized graphite pigment and an alkydal T binder and for a basic color system with a pigment consisting of iron-oxide red, talc, and zinc tetroxychromate (2:2:1) in a binder of alkyd resin and urea resin (5:1). The CPVC did not fall on the gloss curve but did fall on the hardness curve. The electrical-conductivity curve of the graphite film showed an inflection point at the CPVC. The moist volume of a liquid as determined by the method of M. von Stackelberg and K. H. Frangen is seen to correspond to the CPVC of the pigment in the respective suspension medium. (See also 59-15670)

Hebermehl, Reinhard.
ISOCYANATES AS LACQUER RAW MATERIALS. [1959] 26p. (1 illus. omitted) 12 refs.
Order from SLA mi$2.70, ph$4.80 59-15725

Trans. of [Deutsche Farben-Zeitschrift] (Germany) 1948 [v. 2] no. 8, p. 123-129.

Herrmann, [Erwin] and Katz, [Elisabeth].
VISCOMETRIC INVESTIGATION OF ALKYD VARNISHES AND PAINTS WITH SPECIAL REGARD TO STRUCTURAL VISCOSITY. [1959] 7p. (refs. 10 figs. 2 tables omitted).
Order from SLA mi$1.80, ph$1.80 59-15977

Trans. of Deutsche Farben-Zeit[schrift] 1958, v. 12 [no. 10] p. 397-401.

The rheological behavior of alkyds of various types of oil and various oil contents in different solution concentrations and 100% was examined. One of these alkyd solutions was compared with paint which was made from this solution and whose rheological behavior was changed by pigmentation. For lower viscosities, the viscosity balance of Heinz with spherical rods or special measuring bodies was used and for higher viscosities, the consistometer of Höppler was used. (These viscometers are falling body viscometers and are read in absolute viscosity because the theoretical ratios are explained mathematically and confirmed experimentally.

Osterle, K. M.
KINETICS OF VARNISH RESINS IN AN ELECTROSTATIC FIELD. [1959] 6p. (7 figs. 2 equations and refs. omitted).
Order from SLA mi$1.80, ph$1.80 59-15672

Partial trans. of Farbe und Lack (West Germany) 1958, v. 64 [no. 7] p. 368-372.

Equations were obtained but are omitted in the translation for the trajectory of lacquer particles during electrostatic lacquer depositing.

Wapler, D.
VISCOSITY MEASUREMENTS OF PAINTS I, tr. by M. Van Loo. 31 Oct 58 [13]p. (9 figs. [introduction, formulas and refs.] omitted).
Order from SLA mi$2.40, ph$3.30 59-15659

Trans. of Deut[sche] Farben-Z[eitschrift] (West Germany) 1958, v. 12 [no. 1] p. 15-24.

Photographic Materials

Amsler, Hans.
SILVER BROMIDE PHOTOCELLS. [1959] 87p. 48 refs.
Order from SLA mi$4.80, ph$13.80 59-17516

Trans. of Z[eitschrift fllr] Elektrochemie (West Germany) 1953, v. 57, no. 9, p. 801-834.

Galashin, E. A. and Tatevskiy, V. M.
PHENOMENON OF PHOTOGRAPHIC REVERSAL. EFFECT OF PROCESSING UPON THE FORMATION OF THE IMAGE WITH SIMULTANEOUS EXPOSURE TO ACTINIC AND BLEACHING LIGHT. [1959] 4p. 8 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17267

Trans. of Zhurnal Fizicheskoy Khimii (USSR) 1957, v. 31, no. 6, p. 1426-1428.

The effect of processing emulsion with bromides, desensitizers, oxidizers, and reducers before subsequent simultaneous exposure to long and short wavelength radiations was studied. The experimental method was described in Doklady Akad. Nauk SSSR 109:347, 1956 (I). When the emulsion was processed with reducers, a reversed picture was observed. Experiments with separate exposures to actinic and bleaching radiations show that a decrease in the maximum density when the concentration of bromide desensitizers is increased is related to the retardation of the process of formation of the latent image. The assumption in (I) regarding the coagulation mechanism of reversal, in the light of data obtained confirming the presence of an intimate relationship of the Herschel effect and solarization, leads to the conclusion that the process of bleaching of the latent image by red and infrared rays can be caused partially or completely by the loss of catalytic activity of centers owing to the growing in size.

Hayn, I., Langhammer, G. and Staude, H.
REACTION OF REPENING AND RETARDING SUBSTANCES UPON CRYSTAL FOILS OF SILVER BROMIDE. [1959] 25p. 13 refs. T-2891.
Order from SLA mi$2.70, ph$4.80 59-15355

Trans. of Photographische Korrespondenz (Austria) 1958, v. 94, no. 5, p. 69-73 and no. 6, p. 83-91.

Information is presented on the reactions of silver bromide monocrystals with sodium thiosulfate and thiosinamine as representatives of ripening substances, and with cystine, cystine and thiazolidine carboxylic acid as representative retarding substances, along with the effects of various gelatins on the crystal surfaces of silver bromide, and of synthetic ripening and retarding substances upon the growth of silver bromide crystals in emulsions. The effect of thiosulfate upon silver grains of a silver bromide monocrystal foil developable without exposure is similar to the ripening effect exerted on emulsions. In the case of retarding substances, the effective concentration in emulsions was essentially lower than in the foil experiments. The synthetic retarding substances that were examined appear to have influenced the growth of silver bromide crystals in great measure, but the ripening substances did not alter the size of the crystals. It is concluded that the retarding substances produce insensitive crystals, whereas ripening substances produce surfaces rich in disturbance sites.

Levkoyev, I. I. and Lifshits Ye. B.
PHOTOGRAPHIC PROPERTIES OF SOME SYMMETRICAL CARBOCYANINE DYES WITH DIFFERENT ALKYL GROUPS AT THE HETERORADICAL NITROGEN ATOMS (O Fotografi cheskikh Svoystvakh

Nekotorykh Simmetrichnykh Karbotsyaninovykh Krasiteley s Razlichnymi Alkil'nymi Gruppami pri Atomakh Azota Geteroostatkov). [1959] 18p. 36 refs. T-3044.
Order from LC or SLA mi$2.40, ph$3.30 59-15797

Trans. of Zhurnal Nauchnoy i Prikladnoy Fotografii i Kinematografii (USSR) 1958, v. 3, no. 6, p. 419-426.

Photographic properties and absorption spectra of a number of symmetrical carbocyanines, unsubstituted in the chain, in emulsion with different heterocyclic radicals containing methyl, ethyl or higher alkyl groups at the nitrogen atoms, were investigated. Contrary to published data (e.g., J. Phot. Sci. 1:173, 1953), N-methyl and N-ethyl derivatives of a number of dyes (with indolenine, thiazoline, benzimidazole, and thiodiazole) differ very slightly from one another in sensitizing power while in other cases (thia-, oxa-, and quino-(2)-carbocyanines) N, N'-dimethyl derivatives actually are considerably less efficient in comparison with the N-ethyl derivatives. The N-methyl derivatives of all the carbocyanines investigated are very close to the corresponding N-ethyl derivatives in the character of sensitization spectra in fogging and desensitizing effect, as well as in basicity values. N-methyl derivatives of these carbocyanines, which contrary to N-ethyl derivatives are adsorbed on the emulsion grains primarily in the H-state, possess a considerably lower sensitizing power than the N-ethyl derivatives. These states, as a rule, possess such low photochemical reactivity that their corresponding bands remain practically undeveloped in the sensitization spectra. In a number of 1, 1'-dialkyl-3, 3, 3', 3'-tetramethylindocarbocyanines the tendency to the second kind of sensitization increases from N-methyl to N-ethyl derivatives and, particularly, to N-propyl derivatives.

Neunhoeffer, Otto and Keiler, Albrecht.
THE THEORY OF THE OPTICAL SENSITIZATION OF PHOTOGRAPHIC EMULSIONS. [1959] 5p. 7 refs.
Order from SLA mi$1.80, ph$1.80 59-17511

Partial trans. (p. 122-126) of Chemische Berichte (West Germany) 1958, v. 91, no. 1, p. 122-[129].

Systematic investigations conducted with substituted n-phenyl-benzimid-azole-trimehine cyanines appear to confirm the assumption that some connection must exist between the sensitization capacity of dyes and their capability of acting as electron acceptors when in an excited state. Halogen substitution acts by reason of an alternating effect.

Plastics

Alekseyenko, V. I., Mishustin, I. U. and Voyutskiy, S. S.
THE COMPATIBILITY OF NITROCELLULOSE WITH OTHER HIGH POLYMERS. [1959] 6p. 3 refs.
Order from CCT $21.00 CCT-218TT

Trans. of [Akademiya Nauk SSSR. Doklady] 1954 v. 95, no. 1, p. 93-96.

Nitrocellulose containing about 12% nitrogen was used in the form of nitromastic of standard composition. Butadiene-nitrile copolymers (59-15925) with various contents of acrylonitrile groups were tested as high molecular weight plasticizers. The dielectric constants were determined from H. Roelig (Kautschuk 17:139, 1941) to be from 4.3 to 13.5. The compatibility of high molecular weight polymers is determined, to the first approximation, by the relationship of the polarities of both components. There can be a positive heat effect, and hence a mutual solution, only upon mixing polymers which differ little in polarity.

Bandel, W.
EXAMINATION OF RESIN FINISHED CELLULOSE HYDRATE FILMS BY INFRARED SPECTROGRAPHY. [1959] [15]p. (1 fig. omitted) 6 refs.
Order from SLA mi$2.40, ph$3.30 59-15067

Trans. of Melliand Textilberichte (West Germany) 1958, v. 39 [no. 2] p. 204-211.

The infrared absorption spectra of viscose films, finished with urea, melamine, acrylic, polyvinyl and epoxy resins, indicate a chemical bond in the case of epoxy resins only. It is also possible to show a reduction of free OH groups in formalin treated films. The relationship between the wash resistance of the finishing effect and the existence of a chemical combination between cellulose and resin is shown. Means of improving the finishing agent as well as the textile additive and cellulose hydrate fibre are discussed.

Edelmann, K[urt] and Horn, E[dith].
RHEOLOGICAL MEASUREMENTS FOR CHARACTERISING HIGH POLYMERS (Die Durchfuehring Rheologischer Messungen zur Charakterisierung von Hochpolymeren). Aug 58, [10]p. 12 refs.
TIL/T4890.
Order from SLA mi$1.80, ph$1.80 59-10058

Trans. of Gum[mi] u[nd] Asb[est] (West Germany) 1957, v. 10 [no. 8] p. 456-460.

The calculations involved in the use of an Umstatter viscometer are described. For a 2% rubber solution in toluene, the critical velocity gradient, the point of inflection of the flow curve as a pure material constant dependant only on the molecular weight of the high polymer, and the absolute value for the inhomogeneity of the latter are obtained as an example.

Gabler, [R].
INVESTIGATIONS OF THE HEAT BEHAVIOR OF GRILON AND OTHER THERMOPLASTICS. [1959] 26p. 21 refs.
Order from SLA mi$2.70, ph$4.80 59-17258

Trans. of Kunststoffe-Plastics (Switzerland) 1956, v. 3 [no. 3] p. 247-254.

Reznikova, R. A., Zayonchkovskiy, A. D. and Voyutskiy, S. S.
PLASTICIZATION OF POLYVINYL CHLORIDE BY BUTADIENE-NITRILE COPOLYMER. I. THE EFFECT ON COMPATIBILITY OF POLYMERS AND THE EFFECT OF PLASTICIZATION PRODUCED BY THE BUTADIENE AND NITRILE GROUPINGS IN THE BUTADIENE-NITRILE COPOLYMER. [1959] 18p. 4 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15925

Trans. of *Kolloid[nyy] Zhur[nal] 1953, v. 15, no. 2, p. 108-116.

A study of the physical-mechanical properties of films from polyvinyl chloride mixtures plasticized by butadiene-nitrile copolymers $-CH_2CH=CHCH_2-$ and $-CH_2CH(CN)-$, showed that up to certain definite doses these polymers can act as plasticizers. The mixtures of polyvinyl chloride with butadiene-nitrile copolymers become heterogeneous and their physico-mechanical indices drop sharply when the limiting doses are exceeded. In plasticization of polyvinyl chloride by butadiene-nitrile copolymers the optimum effect is observed in the case of a copolymer in which for each nitrile group there are two butadiene groups. The molecule of the high molecular weight plasticizer for a polar polymer was assumed to contain polar areas which interact with the polar group of the polymer and insure a uniform distribution of the high molecular weight plasticizer in the polymer, as well as nonpolar areas which screen the polar group of the polymer and reduce the interaction between its molecules.

Sevast'yanov, K. F.
SETTING OF CARBAMIDE RESINS (K Voprosu ob Otverzhdenii Karbamidnykh Smol) tr. by M. Slade. [1959] 12p. Trans. no. 4061.
Order from LC or SLA mi$2.40, ph$3.30 59-15323

Trans. of [Derevoobrabatyvayushchaya Promyshlennost'] (USSR) 1958, v. 7, no. 2, p. 9-11.

Results are presented of investigations of the hardening process of urea-melamine resin conducted at the Central Scientific Research Institute of Plywood and Furniture. An attempt was made to establish the influence of the temperature, the content of ammonium chloride, and the time of treatment of the resin on the appearance of water-insoluble compounds in it.

Winterscheidt, Horst.
COLOR REACTIONS AND SIMPLE CHEMICAL REACTIONS FOR THE DETERMINATION OF VINYL POLYMERIZATES. 7 Jan 55, 6p. 5 refs.
Order from SLA mi$1.80, ph$1.80 59-15482

Trans. of Seifen-Ole-Fette-Wachse (West Germany) 1954, v. 80, p. 239ff.

Colorations can be attained with monochloroacetic and dichloracetic acids for recognizing vinly polymerizates according to the following procedure. Enough acid is melted in a 12-mm-diam test tube to yield about 5 ml of melt. A pinch of the substance which has been ground as finely as possible is added to the melt, and the mixture is brought to boil over a small flame while shaking. The colorations appear during this operation. If, after boiling 2 min, no green, blue, or violet coloration appears, the reaction may be considered to be negative. With mixed polymerizates, for instance on vinyl acryleic ester bases, a useful color reaction occurs only if at least 2/3 of the components are vinyl. Tabulations are presented of the products used in the plastics industry which do not give coloration; the observed colorations of vinyl polymerizates on treatment with monochloroacetic or dichloroacetic acid; and the solubility characteristics and chemical reactions for polyvinyl alcohol, polyvinyl esters, polyvinyl ether, polyvinyl pyrollidone, and polystyrene.

Rubber and Elastomers

Dogadkin, B. A.
THE STRUCTURE OF VULCANIZATES AND THEIR MODIFICATION DURING VULCANIZATION, THERMO-MECHANICAL EFFECT, AND FATIGUE. [1959] 17p. 19 refs.
Order from SLA mi$2.40, ph$3.30 59-15874

Trans. of Kautschuk u[nd] Gummi (Germany) 1959, v. 12, no. 1, p. 1, WT 5-WT 10.

Pumpyanskiy, L. M.
THE 25TH ANNIVERSARY OF THE YEFREMOV SYNTHETIC RUBBER PLANT [AND] THE SEVEN YEAR PLAN IN THE RUBBER AND RESINS INDUSTRY OF THE YAROSLAV ECONOMIC ADMINISTRATION. 19 Mar 59 [4]p. AF 1255631.
Order from LC or SLA mi$1.80, ph$1.80 59-16437

Summary trans. of Kauchuk i Rezina, (USSR) 1958 [v. 17] no. 6, p. 2-3 and complete trans. of 1958 [v. 17] no. 7, p. 27-28.

Scheele, Walter and Bielstein, Georg.
THE VULCANIZATION OF NATURAL RUBBER WITH TETRAMETHYLTHIOURAM-MONOSULFIDE AND SULFUR. Communication no. 5 on the Vulcanization of Highly Elastic Polymerizates. [1959] 28p. (5 illus. omitted) 16 refs.
Order from SLA mi$2.70, ph$4.80 59-15948

Trans. of Kautschuk und Gummi (Germany) 1955, v. 8 [no. 10] p. 251-257.

These compounds were used in the ratio of 1 mole of thiouram monosulfide to 1 gram atom of sulfur. All tests were conducted in the presence of an excess of zinc oxide, over a temperature range from 90° to 150°C. Both the concentration of thiouram monosulfide and sulfur decreased during vulcanization. There was 66 mol-% of zinc dithiocarbamate (based on the amount of added thiouram monosulfide) formed in the course of a first order reaction. The same conditions prevailed as during a vulcanization with thiouram disulfide. The vulcanization of rubber with thiouram monosulfide is therefore but a vulcanization with thioruam disulfide, the quantitative formation of which procedes the vulcanization reaction proper. The presence of thiouram disulfide in the extracts of vulcanizates could at no

phase of vulcanization be established with certainty. It, therefore, must be assumed that it reacted with the rubber immediately after it had been formed. The reaction rate constants of dithiocarbamate formation at individual temperatures were calculated from the results of the tests and from the graphs. They are tabulated and their dependence upon temperature are discussed. The effect of the preceding reaction of the monosulfide with sulfur made itself felt at lower temperatures and influenced energy relations. Thiouram-vulcanization cannot be a vulcanization by sulfur.

Wood and Paper

DRIVEN MEMBER FOR PAPER PULP MACHINES, tr. by P. C. C. 12 May 59, 4p.
Order from LC or SLA mi$1.80, ph$1.80 59-16838

Trans. of German patent 646,575, cl. 55d, gr. 10/20, pat. from 3 Aug 34, grant announced 27 May 37, pub. 17 June 37, by Thomas Josef Heimbach G. m. b. H. & Co., Germany.

The member consists of paper yarn impregnated with fiber protection agents in such a manner that said protective agent is simply incorporated in the yarn without forming a covering thereon.

FELT FOR REMOVING WATER FROM WET FIBERS, PARTICULARLY FROM PAPER WEBS, tr. by P. C. C. 7 May 59, 2p.
Order from LC or SLA mi$1.80, ph$1.80 59-16837

Trans. of German patent 635,989, cl. 55d, gr. 10/20, pat. from 1 Feb 33, grant announced 10 Sep 36, pub. 28 Sep 36, by Firma J. J. Marx.

The felt is characterized in that the content of absorbent cotton in the fibers depends upon the condition of the fibers from which the water is being removed.

Becker, G[ünther].
NEW FINDINGS CONCERNING THE PRESERVATION OF WOODEN POLES BY MEANS OF SALTS. [1959] 31p. 1 ref.
Order from SLA mi$3.00, ph$6.30 59-10957

Trans. of Elektrizitätswirtschaft (West Germany) 1957, v. 56, no. 7, p. 207-213.

Gierer, Josef.
THE REACTIVE GROUPS OF LIGNIN. [1959] 18p. 67 refs.
Order from SLA mi$2.40, ph$3.30 59-17152

Trans. of Svensk Pappers-tidning (Sweden) 1958, v. 61 [no. 18B] p. 648-655.

Judt, M[anfred].
THE EFFECT OF SHAKE OF PAPER MACHINES ON SHEET FORMATION AND FIBRE ORIENTATION. [1959] 12p. (4 figs. 6 tables omitted) 32 refs.
Order from SLA mi$2.40, ph$3.30 59-17048

Trans. of das Papier (West Germany) 1959, v. 13, no. 3/4, p. 46-54.

Varying points of view on when and where shake operates, how the wire shake affects the speed of water removal, how shake influences strength orientation in paper, how shake should be carried out and the factors that influence the efficacy of the shake, along with results of experiments with laboratory apparatus and experimental paper machines are given.

Noll, August.
MICROSCOPIC FIBER ANALYSIS. [1959] [7]p. 10 refs.
Order from SLA mi$1.80, ph$1.80 59-15244

Trans. of Papier-fabrikant (Germany) 1938, v. 36, p. 133-135.

A method for the simultaneous microscopic detection of mechanical wood pulp, unbleached, and bleached chemical cellulose in a given specimen is described. The affinity relationships of basic dyes and basic mordants to the three components mentioned were studied and differentiation was made between the affinity of native lignin in mechanical wood pulp and that of chemically treated lignin in unbleached chemical celluloses. Reagents of basic dye stuffs in the presence of aniline sulfate are used to detect mechanical wood pulp in the presence of unbleached and bleached cellulose, by means of a single preparation, in such a way that the mechanical wood pulp (native lignin) gives a color reaction (yellow) only with aniline sulfate.

Pacholik, A. and Silbernagel, H.
THE PROBLEM OF FIXATION OF U- AND UA-SALTS. [1959] 19p. 10 refs.
Order from SLA mi$2.40, ph$3.30 59-10855

Trans. of Holzforschung und Holzverwertung (Austria) 1957, v. 9, no. 2, p. 21-24.

After recognizing the causes for incomplete fixation of fungicidal agents in the U- and UA- salt blends used up to the present time, a new method was developed, in particular for the fixation of fluorine. In general, a successful fixation (particularly of fluorine) depends considerably on the pH value that is established in the wood during the time of fixation. By utilizing complex boron fluorides as a component supplying fluorine in the new compositions and at the same time acting as a buffer, an optimal pH range is established towards the end of this slow fixation process, the slowness of the fixation technique being favorable in itself. Contrary to other impregnating salt solutions of similar fixation effect, the new salt compositions have the further advantage of being only slightly corrosive.

Sadler, Hans and Trantina, Othmar.
LOOSENING OF FIBRE TO FIBRE BONDING IN WOOD THROUGH PULPING. [1959] [20]p. (1 fig. omitted) 31 refs.
Order from SLA mi$2.40, ph$3.30 59-15976

Condensed trans. of das Papier (West Germany) 1958 [v. 12] no. 21/22, p. 553-567.

Softening of wood during the progress of a cooking was studied, based on a determination of shear strength according to J. E. Stone (Tappi 38: 452, 1955 and Pulp Paper Mag. Can. 58: 191, 1957). Shear strength and the ability to defibre are directly related. Test specimens of dimensions similar to mill chips were cooked with (a) calcium acid sulphite with an excess of SO_2, (b) sodium bisulphite solutions, or (c) neutral sulphite solutions; at different maximum temperatures and different times at maximum temperature and then selected for even distribution of annual rings. Shear strength decreases rapidly in the initial cooking stage; this decrease is more pronounced for cooks at higher maximum temperatures and approaches (if cooked for long periods at maximum temperatures) zero shear strength asymptotically. Process (a), (b) and (c) show identical kinetic effects if cooking temperatures are selected at 120, 150 and 180°C. Such conditions produced equal shear strength (at equal time at maximum temperature). Such temperature differences of 30°C increments are the result of different swelling of wood at different pH values, as well as the different buffering effect of various bases on SO_2 during the cook. A comparison at equal shear strength shows that pulps cooked according to (a) have a somewhat higher yield than pulps cooked according to (b) but are very much higher in yield than pulps cooked according to (c). Conversely, calcium acid sulphite pulps are easier to defibrate than pulps (a) or (c) if cooked to equal yields. Conventional pulps which are easy to open up have shear strengths of 1 to 2 kg/sq cm. Semi-chemical and high yield pulps show 7 to 8 kg/sq cm whereas pulps in excess of 8 kg/sq cm have groundwood characteristics.

MATHEMATICS

Bogolyubov, N. N. and Vladimirov, V.S.
ON THE ANALYTICAL CONTINUATION OF GENERALIZED FUNCTIONS [AND] CALCULATIONS IN THE REGION OF ANALYTICS: ADDENDUM TO THE ARTICLE ON "ANALYTICAL CONTINUATION OF GENERALIZED FUNCTIONS". [1958] [68]p. 15 refs.
Order from OTS $2.00 AEC-tr-3586

Trans. of monos. Ob Analiticheskom Produlzhenii Obobshchennykh Funktsii, Moscow, 1957 [and] O Vychislenii Oblasti Analitichnosti (Dopolneniye k Rabote "Ob Analiticheskom Prodolzhenii Obobshchennykh Funktsii", Moscow, 1958.

Dispersion correlations from theoretical physics provide a connection between the real and the imaginary parts of a certain complex (usually generalized) function $\mathrm{Re}\,\tilde{f}(p) = (1/\pi) P \int_{-\infty}^{\infty} [\mathrm{Im}\,\tilde{f}(p')/(p' - p)]\,dp'$. Cauchy's formula is employed to produce correlations of this kind. These papers deal with the analytic continuation of the function $\tilde{f}(p)$ into a complex region. In the first paper the analytical character of the continuation of generalized functions of many variables is proved and used to establish that the region of analytics on Z_s satisfies the inequality $|Z_s + \alpha 2|^2 \leq \rho 2\mu^2 (M/t)^2$, for $0 \leq \alpha \leq 2\sqrt{2}\mu$. In the addendum, the region of analysis is widened by replacing the constant $2\sqrt{2}$ by either 3.20, 2.27, or 3.11 for certain conditions when $M = .7\mu$.

Khusu, A. P.
ON SOME FUNCTIONALS ENCOUNTERED IN ENGINEERING PROCESSES (O Nekotorykh Vstrechayushchikhsya v Tekhnike Funktsionalakh Zadannykh na Protsessakh) tr. by S. Reiss. [1959] 19p. 5 refs. CC-E-243.
Order from LC or SLA mi$2.40, ph$3.30 59-16783

Trans. Leningrad U. Vestnik (USSR) 1956, no. 1, p. 89-100.

A statistical study of some of the properties of a Gaussian random process is undertaken and a number of theoretical results are derived that relate the power spectrum to such properties of the process as the number of zero crossings and the average number of peak values. The results are then applied to an examination of the microroughness of polished metal surfaces. The results obtained indicate that the microroughness of the surface approximates a Gaussian random process.

Shimanov, S. N.
OSCILLATIONS OF QUASI-LINEAR SYSTEMS WITH A NONANALYTICAL CHARACTERISTIC OF NONLINEARITY (Kolebaniya Kvazilineynykh Sistem s Neanaliticheskoy Kharakteristikoy Nelineynosti) tr. by S. Reiss. [1959] 17p. 4 refs. CC-E-136.
Order from LC or SLA mi$2.40, ph$3.30 59-16782

Trans. of Prikladnaya Matematika i Mekhanika (USSR) 1957, v. 21 [no. 2] p. 244-252.

A method is presented for determining the periodic oscillations of quasi-linear systems with a nonanalytical characteristic of nonlinearity.

MECHANICS

Arabadzhi, V. I.
KINETICS OF THE COLLISION OF DROPS. [1959] 2p. (3 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-17159

Trans. of Meteorologiya i Gidrologiya (USSR) 1956, no. 4, p. 35-36.

An analysis of motion pictures (at 1500 frames/sec) of the collision of 2 mutally perpendicular streams of 2- to 6-mm diam drops having an outflow velocity of about 2 m/sec and directed respectively toward the ground

and horizontally indicated that on collision an annular water belt is formed which undergoes a gradual disintegration. Motion pictures of the fall of drops on a plane water surface showed that the latter breaks and is bent downward, then water is ejected upwards which sometimes terminates at its summit by a fairly symmetrical bubble. After the ejection recedes there may occur a second small ejection. The ejections are caused by brief damped oscillations of the water surface caused by the impact of the drop. By using colored drops it was ascertained that a vortical ring of the substance of the impacting drop moves out and penetrates several centimeters of the body of the liquid. The motion picture recordings of the fall of drops upon a water surface show that the bubbles are formed at the summit of the ejection of water or, less frequently, at the lateral projections thereof. This confirms the theory of the ballo-electric affect of Leonard-Frenkel according to which electrification of liquids on their spattering takes place by a drawing of the charge from the double layer extending to a certain depth into the liquid.

Garf, M. E.
LABORATORY INSTRUMENTATION AND TECHNOLOGY: NEW MACHINE FOR PROGRAMMED FATIGUE TESTING. [1959] 5p. NA 8S.
Order from LC or SLA mi$1.80, ph$1.80 59-16732

Trans. of Zavodskaya Laboratoriya (USSR) 1955 [v. 21] no. 10, p. 1238-1241.

A new machine for programmed fatigue testing of rotating unsupported samples having a diameter up to 5 mm was built and is being successfully operated at the Machine Husbandry and Farm Mechanics Institute of the Academy of Sciences of the USSR. The machine permits the magnitude of the loading to be changed automatically as testing progresses and the number of cycles to be adjusted over a wide range within the limits of the amount of each loading. In the machine that we have built, the loading of the sample is achieved by means of a spring, the tension of which is changed by the operation of a high speed electromagnetic device.

Korobeynikov, V. P. and Ryazanov, Ye. V.
ON THE SOLUTIONS OF THE MAGNETOHYDRODYNAMIC EQUATIONS FOR A ZERO TEMPERATURE GRADIENT. [1959] 3p. 2 refs.
Order from MDF $3.00 MDF K-190

Trans. of Akademiya Nauk SSSR. Doklady, 1959, v. 124, no. 1, p. 51-52.

Aerodynamics and Pneumatics

Hämmerlin, Günther.
ON THE THEORY OF THE INSTABILITY OF THE TWO-DIMENSIONAL STAGNATION-POINT FLOW (Zur Instabilitätstheorie der Ebenen Staupunktströmung) tr. by S. Reiss. [1959] 18p. 2 refs. NASA E-110.
Order from SLA mi$2.40, ph$3.30 59-10537

Trans. of mono. 50 Jahre Grenzschichtforschung, Friedr. Vieweg & Sohn, Braunschweig, 1955, p. 315-327.

Stepanov, R. D.
ON THE FLUTTER OF CYLINDRICAL SHELLS AND PANELS MOVING IN A FLOW OF GAS (O Flattere Tsilindricheskikh Obolochek i Panelei Dvizhushchikhsya v Potoke Gaza). Sep 58, 25p. 6 refs. Technical Memorandum 1438.
Order from NASA NACA TM-1438

Trans. from Prikladnaya Matematika i Mekhanika (USSR) 1957, v. 21, no. 5.

The flutter of infinitely long closed cylinders, infinitely long cylindrical panels, and closed cylinders of finite length is investigated on the basis of Vlasov's shallow shell theory (also known as Donnell's theory) and a simpler approximate theory valid for shells of medium length. The air forces are given by piston theory. Values of a critical velocity above which finite steel cylinders with either simply supported or clamped ends may possibly flutter in sea-level air are tabulated for various ratios of thickness to radius and radius to length.

Hydrodynamics, Hydraulics, and Hydrostatics

Ostroumov, G. A.
FREE CONVECTION UNDER THE CONDITIONS OF THE INTERNAL PROBLEM, tr. by S. Reiss. [1959] 233p. 46 refs.
Order from NASA NACA TM 1407

Trans. of mono. Svobodnaya Konvektsiya v Uslovyakh Vnutrenney Zadachi, Moscow-Leningrad, 1952.

Convective processes in the gravitational-force field are considered. Mathematical theory of steady and unsteady gravitational convection is presented. General nonlinear equations that can be linearized are emphasized. Experimental investigations of phenomena described by both the linear and nonlinear equations are considered, and experimental techniques are discussed. One chapter is concerned with the characteristics of water as the working fluid. Tabulated data are given on the thermal and convective parameters of water and are compared with those for other fluids.

Petryanov, I. and Rozenblum, N.
ON THE CONTACT-ANGLES OF SMALL DROPLETS. [1959] [8]p. (2 figs. 15 refs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-15979

Trans. of Akad[emiya] Nauk [S]SSR. Dok[lady] 1948, v. 61, no. 4, p. 661-664.

Titanium oxychloride (obtained by the hydrolysis of titanium tetrachloride) or a high-vacuum pump oil (Cenco Hyvac Oil No. 93050 C) was applied little by little to a preparation of either asbestos fibres or threads of a vanadium pentoxide sol. The preparation was meanwhile observed under an ordinary microscope

at a magnification of 1200. When droplets appeared on the fibres the application of the liquid was stopped. The contact angles between the droplets and the fibres were then measured on electron-microscope photographs taken at a magnification of 17,000 and enlarged 1.7 times. The droplets had diameters of 10^{-4} cm or less. The contact angles varied from 0^{o} to 90^{o}. For a thread of any given diameter, the contact angle increased with droplet diameter. For a given droplet size the contact angle decreased as the thickness of the fibre increased. The thicker the thread the stronger the molecular interaction between it and the liquid droplets. The size of the droplets having a contact angle of 90^{o} was less for thinner threads than for thicker threads. The limit distance to which the influence of the intermolecular forces extends is about 2 to 3 x 10^{-5} cm. With fibres of this diameter the contact angles are practically independent of the droplet diameters. A little of the liquid always spreads over the surface of the fibres and always wets them, regardless of the nature of the surface or the nature of the liquid.

METALLURGY

*ZAVODSKAYA LABORATORIYA (USSR) 1959, V. 25, NO. 2, P. 131-255 (Plant Laboratory). [1959] 1v. SOV-32-25-2-(1-78)/78.
Order from OTS $1.00, $5.50/6 mo. PB 141 027T-17
Foreign $1.25, $7.00/6 mo.

Consists of abstracts in English.

Karmazin, V. I.
HIGH-INTENSITY MAGNETIC SEPARATION.
15 May 59 [22]p. 6 refs. Misc. rept. no. 75.
Order from LC or SLA mi$2.70, ph$4.80 59-15821

Trans. of Gornyy Zhurnal, 1956, no. 2, p. 55-62.

The development of magnetic separators with magnetic systems closed through two working air gaps, and having focused fields is reported. In comparison with ordinary belt and drum separators with open (magnetic) systems, these separators allow a 5 to 10 fold increase in feed width, inasmuch as a hollow, light-weight induced steel drum does not deflect significantly per unit width of feed, and the magnetic system is suspended outside the drum and the tank. Because of this advantage, the productivity of a separator with a focused field may be increased 4 to 6 times. Utilization of separators with closed focused fields alleviates plant organization problems involving complicated circuits, viz., "grinding, separating, and classification".

Krulla, Rudolf.
PROCESS AND APPARATUS FOR DEGASIFICATION OF METAL BATHS, tr. by J. C. Levy. 18 Feb 59, 3p. (2 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-14201

Trans. of Austrian patent 138,020, cl. 40a, appl. 19 July 33, beginning of pat. term 15 Feb 34, pub. 25 June 34, by Berndorfer Metallwarenfabrik Arthur Krupp A. G., Berndorfer.

Shtaynvand, Rudolf'
THE DEVELOPMENT OF THE METALLURGICAL INDUSTRY OF THE GERMAN DEMOCRATIC REPUBLIC. 29 July 59, 11p. JPRS: L-871-D.
Order from OTS $0.50 59-11590

Trans. of *Stal' (USSR) 1959, v. 17, no. 11, p. 1034-1038.

Ferrous Metals

Ferents, Gertseg.
DEVELOPMENT OF FERROUS METALLURGY IN THE HUNGARIAN PEOPLE'S REPUBLIC.
29 July 59, 5p. JPRS: L-870-D.
Order from OTS $0.50 59-11589

Trans. of Stal' (USSR) 1957, v. 17, no. 11, p. 1032-1033.

Nikolayev, A. S.
USSR QUALITY STEEL METALLURGY. 24 July 59, 12p. JPRS: L-868-D.
Order from OTS $0.50 59-11585

Trans. of Stal' (USSR) 1957, v. 17, no. 11, p. 987-991.

Structural Metallurgy and Corrosion

Allakhverdiyev, G. A.
DETERMINATION OF SOIL CORROSION CHARACTERISTICS FOR THE PROTECTION OF UNDERGROUND INSTALLATIONS. [1959] 13p. 8 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-17246

Trans. of Azerbaydzhanskoye Neftyanoye Khozyaystvo (USSR) 1956, no. 2, p. 18-22.

Polarization curves obtained in sandy, agrillo-sandy and agrillaceous saline soils, sampled along the Baku-Batum pipe line were used to develop a simplified method for determining soil corrosivity. Steel electrodes were buried in the soil and polarized until a potential drop of 500 mv was obtained between them. The polarization current density was then determined and used as a standard of corrosivity. A considerable quantity of blisters and penetrating corrosion spots were observed in pipes in soils in which the polarization current density for a moisture content of 20% amounted to 0.30 *ma/sq cm, and higher. These soils are considered especially harmful.

Altenpohl, D.
THE USE OF BÖHMITE LAYERS FOR PROTECTION AGAINST CORROSION OF PURE ALUMINIUM, REFINED ALUMINIUM AND SOME ALLOYS RESISTANT TO CORROSION. [1959] [28]p. 23 refs. AERE Lib/Trans 525.
Order from SLA mi$2.70, ph$4.80 59-17346

Trans. of Aluminium (Germany) 1955, v. 31, no. 1, p. 10-14, no. 2, p. 62-69.

Böhmite films can be deposited on aluminum with steam or with boiling distilled (or softened) water, sometimes adding a small amount of soda. The natural oxide skin of aluminum is about 0.01μ thick; böhmite films which are satisfactory for corrosion protection are 20 to 200 times as thick. The stability of aluminum is increased by suitable films. The protective effect of eloxal is greater than of böhmite, but the amorphous eloxal film may have a higher solubility that the crystalline böhmite film in weak acids. Böhmite films have the advantage of more simple deposition methods and substantially higher chemical stability. Böhmite films can serve for protection from corrosion of the internal walls of storage or transport containers, or piping systems, and cooling coils, because of the simple methods of deposition.

Fetisov, T.
ULTRASONICS CONQUERS CORROSION. [1959] 3p.
Order from LC or SLA mi$1.80, ph$1.80 59-14711

Trans. from Izvestiya (USSR) 1957, no. 275(12582).

The great advantages of removing rust with ultrasonic oscillations are intimated. After this treatment the metal acquires, for a certain period of time, an anticorrosive property.

Marchlewska-Szrajer, J. and others.
NON-CORROSIVE PAPERS. [1958] 12p. (9 figs. omitted) 27 refs.
Order from SLA mi$2.40, ph$3.30 59-10796

Trans. of Zellstoff und Papier (Germany) 1958, v. 7, no. 7, p. 199-206.

Pourbaix, Marcel.
APPLICATIONS OF ELECTROCHEMISTRY TO INVESTIGATIONS IN CORROSION. Apr 55 [14]p. 27 refs. AERE Lib/Trans 524.
Order from SLA mi$2.40, ph$3.30 59-17345

Trans. of Werkstoffe und Korrosion (West Germany) 1954, v. 5, no. 11, p. 433-440.

A lecture given at the Conference on Corrosion, 1954, Frankfurt-am-Main.

Rozenfeld, L. L. and Lukonina, T. L.
A NEW CATHODIC DEPLORIZER (O Novom Katodnom Depolyarizatore). 1959 [7]p. 6 refs. NRL Trans. no. 736.
Order from OTS $0.50 59-21087

Trans. of Akademiya Nauk SSSR. Doklady, 1956, v. 111, no. 1, p. 136-139.

NUCLEAR PHYSICS AND NUCLEAR CHEMISTRY

Artamkin, V.
ON AN ATOMIC AIRPLANE [Ob Atomnom Samolete]. 14 Oct 58 [9]p. 25 refs. T-106.
Order from LC or SLA mi$1.80, ph$1.80 59-10817

Trans. of Atomnaya Energiya (USSR) 1958 [v. 4, no. 4, p. 389-391].

Bibergal', A. V. and Margulis, U. Ya.
ATOMIC EXPLOSION AND CERTAIN PROBLEMS OF ATOMIC DEFENSE. CHAP. IV-VII. 9 Mar 59 [25]p. AF 1255454.
Order from LC or SLA mi$2.70, ph$4.80 59-16448

Trans. of excerpts from mono. Atomnyy Vzryv i Nekotoryye Voprosy Protivoatomnoy Zashchity, Moscow, 1958, chap. 4-7.

The two translated chapters are entitled, respectively: Luminous radiation and protective measures; and Residual radioactivity and decontamination.

Dem'yanikov, I.
THE INSTITUTE OF NUCLEAR PHYSICS IN ALMA-ATA (Institut Yadernoy Fiziki v Alma-Ata). 8 Jan 59 [3]p. AF 1255406.
Order from LC or SLA mi$1.80, ph$1.80 59-12685

Trans. of Kazakhstanskaya Pravda (USSR) 1958, no. 219, p. 3, col. 5-6.

Han-chao, Liu
NUCLEAR CHARGE DISTRIBUTIONS AND COMPARISON WITH RELATED EXPERIMENTS. [1958] 7p. 12 refs.
Order from OTS $0.50 AEC-tr-3521

Trans. of Acta Physica Sinica (Chinese People's Republic) 1956, v. 12, p. 177-181.

A comparison is made between different approaches to the determination of nuclear charge distributions. The methods used are high energy electron and nuclear scattering, theory of shell structure and Thomas-Fermi model, and the X-ray from μ mesonic atoms.

Polubarinov, I. V.
BOUND STATES AND SCATTERING OF BARYONS DURING CONTACT INTERACTION, tr. by Lydia Venters. Nov 58, 26p. 12 refs.
Order from LC or SLA mi$2.70, ph$4.80 AEC-tr-3616

Trans. of mono. Cvyazannyye Sostoyaniya i Rasseyaniye Barionov pri Kontaktnom Vzaymodeystviy, Moscow, 1958.

The possibility of describing π- and K-mesons as bound states in the theory of four-baryon interactions is discussed. In the frame of this theory in chain approximation the cross-sections of the scattering of baryons on baryons are obtained. The question of validity in application of the perturbation theory for the cross-sections of the first approximation is discussed.

Instruments and Installations

Bibergal', A. V., Margulis, U. Ya., and Vorob'yev, Ye. I.
PROTECTION AGAINST ROENTGEN AND GAMMA RAYS. 8 July 59, 149p. (75 figs. omitted) JPRS: 1726-N.
Order from OTS $2.75 59-13668

Trans. of mono. Zashchita ot Rentgenovykh i Gamma Luchey, Moscow, 1955, chap. 4-8, p. 94-226 and 233-237.

Granil'shchikov, V. P. and Parkhomenko, G. M.
SANITARY, HYGIENIC, AND TECHNICAL REQUIREMENTS IN PLANNING AND EQUIPPING LABORATORIES FOR RADIOACTIVE SUBSTANCES. 17 July 59, 9p. (7 figs. omitted). JPRS: L-876-N.
Order from OTS $0.50 59-13709

Trans. of Meditsinskaya Radiologiya (USSR) 1956 [v. 1] no. 3, p. 42-52.

Kel'man, V. M.
A NEW MAGNETIC β-SPECTROMETER, tr. by Lydia Venters. Mar 59 [7]p.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3632

Trans. of Akademiya Nauk SSSR. Vestnik, 1958, v. 28, no. 7, p. 75-78.

Vaynberg, M. Sh. and Lagunova, I. G.
DEVELOPMENT OF DOSIMETRY IN THE USSR. 3 Aug 59, 8p. JPRS: 853-D.
Order from OTS $0.50 59-11748

Trans. of Vestnik Rentgenologii i Radiologii (USSR) 1957 [v. 32] no. 5, p. 35-40.

This survey includes a partial list of devices produced by establishments under the control of the USSR Ministry of Public Health and the Ministry of the Radio Industry. A need for dosimeters for x-ray and gamma ray apparatus is noted. Soviet authors of handbooks or monographs on dosimetry are listed.

PHYSICS

Monosov, Ya. A. and Turov, E. A.
SEMINAR ON FERROMAGNETIC RESONANCE. 29 Jan 59, 2p. TM-20.
Order from LC or SLA mi$1.80, ph$1.80 59-16746

Trans. of *Radiotekh[nika] i Elektro[onika] (USSR) 1958, v. 3, no. 11, p. 1407.

Topics are noted on papers that were read at the seminar, called by the Scientific Committee on Magnetism of the Academy of Sciences USSR and held in Sverdlovsk from February 8 to 13, 1958.

Electronics

ELECTRIC DISCHARGES IN GASES [AND] PLASMA: ANNOTATED BIBLIOGRAPHY. 28 Jan 59 [71]p. AF 1255488.
Order from LC or SLA mi$4.50, ph$12.30 59-12981

Trans. from Soviet open sources, 1950-1958.

The 232 articles are listed in alphabetical order within the following framework. Electric discharges in Gases: (1) cross section, (2) excitation, (3) high frequency and pulse discharges, (4) ionization, (5) nuclear physics aspects, (6) spark discharges, (7) spectroscopy and emission, (8) straited discharges and positive column, and (9) miscellaneous. Plasma: (1) magnetic and electromagnetic fields, (2) motion of particles, (3) oscillation, (4) plasma acceleration, (5) plasma probes, (6) propagation of electromagnetic and acoustic waves, (7) radiation and spectrum analysis, and (8) miscellaneous.

Ardenne, Manfred von, Schiller, S., and Westmeyer, H.
ON PLASMA RESEARCH WITH AN ELECTRON RAY PROBE ELECTRODE OF A SMALL DIAMETER. [1959] 21p. (10 figs. omitted) 26 refs.
Order from SLA mi$2.70, ph$4.80 59-17241

Trans. from Experimentelle Technik der Physik (East Germany) 1958, v. 6, no. 2 [p. 49-62]. Another translation is available from LC or SLA mi$2.70, ph$4.80 as AEC-tr-3619 [1959] 27p.

The relatively complicated plasma of an Unoplasmatron ion source with artificially increased cathode fall of potential was examined by means of an electron-ray search electrode of a very small diameter. A 35-kv electron-ray from a precision electron-ray oscillograph was used as the electron-ray probe electrode. By a relative movement of the discharge to the electron-ray probe electrode the field strength of the plasma was measured in the space between the cathode fall of potential range and the anode. The observed deviations and deformations of the focal point by the plasma oscillating fields are discussed. The interrelation between the degree of orientation of the plasma

oscillations and the plasma field strength gradient is determined. The plasma oscillating fields are directed to a higher degree in the direction of the field strength in the plasma as the value of the field strength gradient in the respective plasma regions increases.

Bayet, M[ichel].
EFFECTIVE CROSS-SECTIONS OF ELECTROSTATIC INTERACTION IN PLASMAS. DEFINITIONS OF THE DIFFERENT "EFFECTIVE CROSS-SECTIONS" FOR THE DIFFERENT CONSTITUENTS OF AN ISOTROPIC GAS, FORMED BY CERTAIN PARTICLES (I). CALCULATIONS OF THE DIFFERENT "EFFECTIVE CROSS-SECTIONS" IN PART I, FOR PARTICLES OF MASS m DESCRIBED BY THE DISTRIBUTION FUNCTION $f(\vec{v},t)$ IN THE CASE OF A PLASMA (II). [1959] 9p. 9 refs. A.C.S.I.L. Trans. no. 1071.
Order from SLA mi$1.80, ph$1.80 59-17225

Trans. of [Academie des Sciences, Paris] Comptes Rendus (France) 1957, v. 245, p. 1708-1710 and 2493-2496.

Devyatkov, N. D.
LINES OF DEVELOPMENT OF SUPERHIGH FREQUENCY ELECTRONICS IN THE SOVIET UNION. 1 June 59, 15p. 26 refs. JPRS: 1613-N.
Order from OTS $0.50 59-13546

Trans. of Izvestiya Vysshikh Uchebnykh Zavedeniy. Radiofizika (USSR) 1958, v. 1, no. 3, p. 3-12.

Topics discussed include spark generators, triodes, klystrons, reflex klystrons, and magnetrons.

Fok, V. A.
MOTION OF IONS IN PLASMA, tr. by S. Shewchuck. 15 Feb 55, 9p. 1 ref. UCRL Trans. no. 218.
Order from LC or SLA mi$1.80, ph$1.80, AEC-tr-3139

Trans. of Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) [1948] v. 18, no. 11, p. 1049-1055.

Approximation formulas are derived for the distribution of velocities of ions in a plasma and for the length of time of existence of an ion in a state with a given velocity. The results of the calculation can be compared with the results of the experimental analyses of S. E. Frish and Yu. M. Kagan (Zhur. Eksp. i Teoret. Fiz. 17: 577, 1947), who investigated the distribution of light intensity emitted by an ion for a given velocity.

Gonorovskiy, I. S.
ON THE PASSAGE OF PULSES WITH A LINEARLY VARYING CARRIER, tr. by Morris D. Friedman. 13 Apr 59, 17p. 6 refs. TG-43.
Order from LC or SLA mi$2.40, ph$3.30 59-14904

Trans. of *Radiotekh[nika] i Elektr[onika] (USSR) 1958, v. 3, no. 12, p. 1485-1494.

The effect of pulses both with constant and varying amplitude on a Gaussian filter is considered. A general solution is found which is suitable for relations between the pulse and filter parameters. The influence of the pulse fronts as a function of the relations between the rate of the carrier frequency change, the pulse length and the filter and filter pass band, as well as a function of the position of the resonant frequency of the filter in the pulse spectrum has been investigated. Conditions are clarified under which the solution found for the pulse effect degenerates into the solution found for a continuous voltage waveform in other works.

Katsenelenbaum, B. Z.
DEGENERATE OSCILLATIONS IN WAVEGUIDES. [1959] [15]p. 18 refs. AF-13.
Order from LC or SLA mi$2.40, ph$3.30 59-16710

Trans. of [Akademiya Nauk SSSR. Otdeleniya Tekhnicheskikh Nauk. Izvestiya] 1955, no. 7, p. 9-22.

The perturbations of oscillations in waveguides are examined which arise when there is a small flat deformation of the walls and when the conductivity is finite. The equivalent boundary condition is established which reduces the small flat deformations to magnetic currents on an undeformed surface. The general methods of the theory of perturbations are applied to the case of degenerate electromagnetic oscillations in waveguides. Certain problems are examined which arise for local deformations which are not flat.

Kocherzhevskiy, G. N.
DIRECTIVITY PATTERNS FOR CORNER SLOT ANTENNAS. [1959] [6]p. 3 refs. AF-16.
Order from LC or SLA mi$1.80, ph$1.80 59-16713

Trans. of Radiotekhnika (USSR) 1954, v. 9, no. 3, p. 33-37.

The paper examines experimental directivity patterns of corner slot antennas. An approximate method is developed for computing such antennas, and a comparison is made between computed and experimental directivity patterns.

Levin, M. L.
INDUCED THERMAL NOISE IN ANTENNAS. [1959] [7]p. 7 refs. AF-21.
Order from LC or SLA mi$1.80, ph$1.80 59-16718

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 13, p. 2313-2318.

Mallach, P.
INVESTIGATIONS OF DIELECTRIC WAVEGUIDES OF ROD OR TUBULAR SHAPES. [1959] 11p.
Order from ATS $14.50 ATS-36K28G

Trans. of [NTZ; Nachrichtentechnische] Zeitschrift (West Germany) 1955, v. 8, no. 1, p. 8-13.

Molecular Physics and Spectroscopy

OPTICS AND SPECTROSCOPY, 1959, VOL. 6, NO. 1. 1959, 84p.
Order from AIP with Journal of the Optical Society of America, $25.00/year, Foreign $28.00/year

Trans. of Optika i Spektroskopiya (USSR) 1959, v. 6, no. 1, p. 3-[127].

Andreyeshchev, E. A. and Rozman, I. M.
LUMINESCENCE SPECTRA OF PLASTIC SCINTILLATORS WITH TRIPHENYLPYRAZOLINE (Spektry Lyuminestsentsiy Plastmassovykh Stsintillyatorov s Trifenilpirazolinom) tr. by Lydia Venters. Jan 59 [8]p. 12 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3571

Trans. of Optika i Spektroskopiya (USSR) 1957, v. 2, no. 4, p. 488-493.

Experimental results show that during excitation of plastic scintillators prepared by the polymerization of 1, 3, 5-triphenylpyrazoline -$\triangle^2$ in styrene by ionizing radiation, the energy migration on behalf of the absorption of polystyrene luminescence by triphenylpyrazoline plays a minor part. At least 80% of the TPhP luminescence is due to the nonradiative migration of the excitation energy at low TPhP concentrations (10^{-3}g/g).

Frish, S.
ALL-CHINA CONFERENCE ON SPECTROSCOPY (NO. 1). 21 Apr 59, 4p. TF-16.
Order from LC or SLA mi$1.80, ph$1.80 59-14906

Trans. from Optika i Spektroskopiya (USSR) 1959, v. 6, no. 2.

Typical topics discussed at the conference held in Peking on 2nd to 6th Nov. 1958 are given. The reports given by the 4 Russian delegates are listed. The work of the CNR (Chinese National Republic) in spectroscopy is discussed. The Physical Institute, Institute of Precision Mechanics and Optics, and Institute of Applied Chemistry of the Academy of Science of the CNR, and the Spectral Laboratory in the Automobile Factory at Changchun are described.

Hausser [Karl-Wilhelm] Kuhn [Richard] and others.
LIGHT ABSORPTION AND DOUBLE BONDS. I. PROBLEMS AND METHODS (Lichtabsorption und Doppelbindung. I. Aufgaben und Methoden). [1959] [12] p. 27 refs.
Order from SLA mi$2.40, ph$3.30 59-15314

Trans. of Zeit[schrift] f[ür] Phys[ikalische] Chem[ie] (Germany) 1935, v. 29, p. 363-370.

Lyzina, L. A.
METHOD OF PRECIPITATION OF SOLID DYE LAYERS FROM SOLUTIONS; CORRECTIONS DUE TO THE REFLECTANCE MADE IN ABSORPTION MEASUREMENTS OF THESE LAYERS. [1959] 9p. 5 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17221

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 4, p. 501-505.

The reflectance is taken into account by 3 equations in 3 (sic) unknowns:

$$(1 - t) = (1 - r_1)(1 - r_2)(1 - x) / (1 - r_3);$$

$$r_{II} = r_1 + (1 - r_1)^2(1 - x)^2 r_2; \text{ and}$$

$$r_B = r_2 + (1 - r_2)^2(1 - x)^2 r_1;$$

where t denotes the total weakening of the flux caused by the true absorption of light by the dye; r_1, r_2, and r_3 represent the flux reflected from the layer-air interface, from the layer-support interface, and from the support-air interface, respectively; x is the share of the flux absorbed in the layer; and r_{II} and r_B are the coefficients of reflectance measured from the airside and from the support side, respectively. By determining (1 - t), r_{II}, and r_B experimentally, it is possible to calculate r_1, r_2, and x. A comparison of curves using and neglecting the reflectance showed that the short wave length maximum is better expressed when the reflectance is considered.

Nikitin, V. A.
RELATIONSHIP BETWEEN THE SCANNING SPEED AND THE RESOLVING POWER OF A SPECTRAL INSTRUMENT. [1959] 5p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-17220

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 4, p. 523-525.

Theoretical consideration led to the following relationships for real spectrometers. If the time constant, t, can be adjusted and the spectral width, s, of the slit, is less than the true half-width, a, of the spectral lines, then the optimum scanning speed, v, is proportional to s^4 for both linear absorption spectra and emission spectra; while for $s \gg a$, $v \sim s^5$ for linear absorption spectra and $v \sim s^3$ for linear emission spectra. If the time constant cannot be adjusted, $v \sim a$ for $s < a$ and $v \sim s$ for $s > a$ in both cases. For the case of a semiconductor receiver with a wide-band system and adjustable time constant $v \sim gs/t$, where $t \sim 10\text{-}s^4$, where g is a coefficient determined from the equation $g \approx \sqrt{(a/s)^2 + 1}$

Pastrnyak, I.
INFRARED ABSORPTION SPECTRUM OF CUPROUS OXIDE, 15 May 59, 5p. 5 refs. TP-31.
Order from LC or SLA mi$1.80, ph$1.80 59-16560

Trans. of Optika i Spektro[skopiya] (USSR) 1959, v. 6, no. 1, p. 107-109.

Vaynshteyn, E. E.
METHOD OF QUALITATIVE X-RAY SPECTRAL ANALYSIS. [1959] 5p.
Order from LC or SLA mi$1.80, ph$1.80 59-14718

Trans. of Conclusion and Table of Contents of mono. Metody Kolichestvennogo Rentgenospektral'nogo Analiza, Moscow, 1956, p. 221-222.

Optics

Arruga, R.
CONTACT LENSES IN COMPARISON WITH INTRAOCULAR LENSES. [1959] [7]p.
Order from SLA mi$1.80, ph$1.80 59-17289

Trans. of unidentified mono. based on a paper presented at the International Congress of Contact Lens Specialists, no. 4, at Urfahren, Chiemsee.

Cezar, Daniel Nicolas Eusebio de Oliveira.
LENTICULAR CORNEA. [1959] [16]p. (16 figs. omitted).
Order from LC or SLA mi$2.40, ph$3.30 59-17300

Trans. of Descriptive note to support a [Spanish] patent application.

The invention concerns a corneal lens or floating lenticular cornea as an article of ocular prosthesis, whose characteristics consist of: a spherical casque, of transparent material, formed by two curved surfaces (one external and one internal) which make the lens, which, at a variable point at a certain distance from their circumpherential edge and in one or both surfaces, this or these modify their curvature with the objective of becoming concurrent and uniting finally in a flat edge, forming in this way a facet or bevel in one or both surfaces (according to the needs of application) in such a manner, that the above mentioned circumpherential edge is withdrawn from the internal and external contact surfaces (sclero-corneal limbus and eyelids respectively) in order to facilitate their respective slidings and to permit the free circulation of humors which bathe the ocular surface and the space bounded by the internal surface of the casque and the external surface of cornea against which it is applied.

Messier, Armand.
CORNEAL LENSES. [1959] [4]p. (11 figs. omitted).
Order from LC or SLA mi$1.80, ph$1.80 59-17295

Trans. of Canadian patent 496,583, issued 6 Oct 53, appl. 10 June 50.

An exclusive right is claimed for a corneal lens formed by a spherical segment whose contour forms corners in order to support it (the lens) alternately on the sclera and the iris of the eye. The contour is formed by four concave curves forming the four corners, which are rounded. The four corners rest on the said sclera as long as the said lens covers the said iris. The internal edge of the said curves between the said corners is rounded.

Solid State Physics

RESEARCH WORK IN PHYSICS AND TECHNOLOGY OF SEMICONDUCTORS IN EAST GERMANY; PRESENT RESULTS AND FUTURE PROSPECTS OF METAL PHYSICS (URAL BRANCH); THEORETICAL SPECTROSCOPY AND QUANTUM MECHANICS OF MOLECULES; NEW BOOKS. 1957, 31p. 45 refs. F-TS-9528/III.
Order from LC or SLA mi$3.00, ph$6.30 59-19009

Trans of Akademiya Nauk SSSR. Vestnik, 1957, v. 27, no. 6, p. 73-75, 93, 101-104, 124-127.

Agranovich, B. M.
THEORY OF THE INTRINSIC OPTICAL ACTIVITY OF MOLECULAR CRYSTALS. I. CLASSICAL THEORY. [1959] 18p. 15 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15176

Trans. of Optika i Spektroskopiya (USSR) 1956, v. 1, no. 3, p. 338-347.

The classical theory of the optical activity of molecular crystals is developed taking into consideration magnetization, quadrupole polarization, and a revised form for the magnitude of gyration for crystals of cubic symmetry in contrast to the former work by M. Born and M. Heppert-Mayer. (The theory of solids, ONTI, 1938). The law of dispersion is derived for crystals consisting of inactive molecules. (See also 59-15359)

Agranovich, V. M.
THEORY OF THE INTRINSIC OPTICAL ACTIVITY OF MOLECULAR CRYSTALS. 2. QUANTUM THEORY. [1959] 17p. 11 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-15359

Trans. of Optika i Spektroskopiya (USSR) 1956, v. 2, no. 6, p. 738-746.

The quantum theory of the optical activity of molecular crystals is developed and general dispersion formulae for the optical activity are derived. The results are applied to the rule of sums and to A. S. Davydov's theory of the absorption of light in molecular crystals. (See also 59-15176)

Anliker, M., Brugger, H. R., and Känzig, W.
BEHAVIOR OF COLLOIDAL FERROELECTRIC SUBSTANCES. III. BARIUM TITANATE $BaTiO_3$. [1959] [29]p. (14 figs. refs. omitted).
Order from SLA mi$2.70, ph$4.80 59-15847

Trans. of Helvetica Physica Acta (Switzerland) 1954, v. 27, no. 2, p. 99-124.

Brauer, Peter.
THE LATTICE-THEORETICAL CALCULATION OF THE ENERGY OF IMPERFECTIONS IN SIMPLE IONIC CRYSTALS. [1959] [13]p. 14 refs. A.E.R.E. Lib/Trans. 534.
Order from SLA mi$2.40, ph$3.30 59-17355

Trans. of Zeitschrift fllr Naturforschung (West Germany) 1952, v. 7a, p. 372-379.

The lattice theory of simple ionic crystals is applied to imperfections which are formed as a result of wrong construction at lattice points. The distortion and the polarization are calculated, for rock salt lattices which have been formed by the inclusion of a foreign ion at a lattice position or by the detachment of a lattice ion, by making use of the fundamental results of Mott and Littleton (Trans. Farady Soc. 34: 485, 1938). The changed energy of the ion, due to the distortion and polarization at the lattice point in question, and the work of removal following upon it are calculated. Information is given here on the applications. The problem of the solution of the Tl^+ ion in the NaCl and KCl is treated here in detail; the result of the treatment is that Tl^+ ions will be dissolved freely in KCl but not in NaCl; this result is in agreement with the experimental result of Pringsheim (Acta Phys. Austriaca 3: 396, 1950) and others.

Faydysh, A. N.
EXPERIMENTAL PROOF OF THE THEORY OF THE TRANSFER OF EXCITONS BY DIFFUSION. [1959] 14p. 21 refs.
Order from LC or SLA mi$2.40, ph$3.30 59-17285

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 5, p. 595-601.

Calculations, based on the phenomenological theory of I. Ya. Kucherov and the author (Doklady Akad. Nauk Ukr. S.S.R. 1: 57, 1956) concerning the transfer of excitons by diffusion, are made of (1) the dependence of the quantum output of luminescence of the host material (anthracene crystals) and the impurity (napthacene) upon (a) the concentrations of the active and neutral impurities, (b) the coefficient of absorption of the incident light, and (c) the crystal size; and (2) the dependence of the magnitude of the photoelectric current upon the coefficient of absorption of the excitation light. (See also 59-14636, 59-15139)

Hofmann, Ulrich and Wilm, Diederich.
ON THE CRYSTAL STRUCTURE OF CARBON. Apr 55 [38]p. 68 refs. AERE Lib/Trans 519.
Order from SLA mi$3.00, ph$6.30 59-17341

Trans. of Z[eitschrift fllr] Elektrochem[ie] (Germany) 1936, v. 42, no. 7b, p. 504-522.

The determination of the lattice constants for coarsely crystalline graphite yields the values of a = 4.252 and o = 6.69 Å. In the case of the finely crystalline carbons, i.e., the active carbons, the intense interferences of the graphite, such as (201), (022) and so on, are missing from the X-ray picture: An explanation which is quantitatively satisfactory can be given for this on the basis of the Arnfelt assumption of a special disturbance of the lattice: in the case of the finely crystalline carbons the separate layer planes in the crystal still lie parallel and at about an equal distance one above another, but they no longer possess any orientation in the a- and b-direction towards one another. The (hkO) interferences of the graphite have, in these carbons, become the cross grating interferences of the individual layer planes: Between coarsely crystalline graphite and the most finely crystalline carbons there exists a continuous series of intermediate members, whose interference patterns likewise can be interpreted quantitatively. A new calculation of the intensity shows that the beginnings of this lattice disturbance already become noticeable in Ceylon graphite and Acheson graphite. The crystal dimensions of the finely crystalline carbons are determined afresh from the half width value, according to the Laue-Brill method. The investigation of the change of the dimensions of the crystal gives an insight into the processes of the formation of the elementary carbon, of the recrystallisation accretion during the graphitisation and of the destruction of the crystals on slow combustion (activation).

Kats, M. and Semenov, B. Z.
THE ABSORPTION AND LUMINESCENCE SPECTRA OF NICKEL-ACTIVATED ALKALI HALIDE CRYSTALS. [1959] 10p. 18 refs. T-3025.
Order from LC or SLA $1.80, ph$1.80 59-15991

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 5, p. 637-642.

Investigations were made on the absorption, emission, and excitation spectra of nickel-activated NaCl, KC, and KBr crystals and their changes after X-irradiation, as well as the effect of adding the nickel activator in the form of different compounds, such as $NiCl_2$, $NiBr_2$, and Ni_2O_3. Several kinds of activated centers having entirely different properties can be formed. The absorption spectra represent one form of centers in crystals which have not been irradiated with X-rays. They absorb light but do not luminesce because, when the excited centers return to the ground state, they do not radiate energy in the form of light, but in some other form, e.g., heat. These centers are the largest part of the impurity added and are N^{++} ions, which are uniformly distributed in the crystal. They are substituted for the cations of the host material in the lattice sites. When the crystal is X-irradiated, a certain part of the Ni^{++} ions is transformed into other centers because of the trapping of free electrons. These centers give new characteristic absorption and fluorescence bands in the orange-red spectral region. An entirely different kind of center, for which a non-uniform distribution, another absorption spectrum, and an emission of very high luminance are characteristic, is also observed in KBr-Ni crystals grown from melts to which the activator is added in the form of oxide. All these centers exist simultaneously in the X-irradiated crystals. The spots of the heterogeneities fluoresce green and the volume of the crystal fluoresces orange-red.

Krause, Alfons and Wolski, Wlodzimierz.
THE FORMATION OF FERROMAGNETIC FERRITES BY THERMAL TREATMENT OF THE CORRESPONDING SLATS. [1959] 2p. 4 refs.
Order from CCT $3.75 CCT-953-TT

Trans. of Roczniki Chemii (Poland) 1957, v. 31, p. 327-328.
Another translation is available from OTS $0.50, NRL Trans-712, as 59-11920 [1959] 3p.

The individual oxides required for the formation of ferromagnetic ferrites (59-11922 or 59-16977) can be obtained in an active state by roasting 2 or more salts of the required metal at 350° to 1000° for 1 hour. A suitable mixture of salts for this purpose is $FeSO_4.7H_2O$ (or FeIII-chloride, -sulfate, or -nitrate) plus another metallic salt, such as Co salt or Ni salt. Ferrites of Mg, Cu, Mn, Ni, Co, and Sm made this way are strongly ferromagnetic, hard, dark colored, and they do not require slow cooling. Their chemical composition (molar ratio) can vary in wide limits ($MeO:Fe_2O_3$ = 1:30 to 30:1). (See also 59-16976)

Krause, Alfons and Wolski, Włodzimierz.
ON FERRIC HYDROXIDES AND OXIDES SUITABLE FOR THE FORMATION OF FERROMAGNETIC FERRITES. [1959] 2p. 8 refs.
Order from CCT $8.50 CCT-1030-TT

Trans. of Roczniki Chemii (Poland) 1957, v. 31, p. 323-324.

Ferric orthohydroxide, polyorthohydroxide, isoorthohydroxide, polyisoorthohydroxide, γ-FeOOH, goethite $(Fe_2O_3 \cdot H_2O)_n$, γ-Fe_2O_3, and α-Fe_2O_3 were used as starting materials for the formation of ferromagnetic ferrites according to a previously described method (59-11922 or 59-16977). A precisely weighed quantity of ferric hydroxide or oxide was mixed, after pulverization in an agate mortar, with the suitable salt, i.e., with the nitrate, sulfate or chloride of a given cation in the necessary molar ratio. The whole was then heated in an electric furnace to 1000°, reaching that temperature after 1 hr. The ferrites of Mg, Cu, Mn, Ni, and Co thus formed showed ferromagnetism if any of the first four of the above hydroxides were used. Likewise, γ-Fe_2O_3 was suitable, but α-Fe_2O_3 was not. Further investigation showed that the most suitable starting materials are the yellow α-hydrates, such as α-FeOOH and goethite, crystallizing in a rhombic system. Ferrites of Co, Ni, Mg, Cu, and Mn were obtained from goethite in particular, with very strong ferromagnetic properties, which were much better than those obtained from X-ray amorphous ferric hydroxides of the ortho type, with the exception of ferric isoorthohydroxide and its products of polymerization. (See also 59-11920 or 59-16974)

Lushchik, Ch. B. and Moskvin, A. V.
CONFERENCE ON LUMINESCENCE (CRYSTAL PHOSPHORS) (NO. 7). 19 Mar 59, 4p. TL-14.
Order from LC or SLA mi$1.80, ph$1.80 59-14903

Trans. from *Optika i Spektroskopiya (USSR) 1959, v. 6, no. 1.

Principal topics are given for the more than 100 papers read at 4 plenary and 14 sectional meetings of the conference held in Moscow from June 26 to July 3, 1958.

Mikaelyan, A. L.
METHODS OF COMPUTING THE DIELECTRIC AND MAGNETIC PERMEABILITIES OF ARTIFICIAL MEDIA. [1959] [15]p. 4 refs. AF-23.
Order from LC or SLA mi$2.40, ph$3.30 59-16720

Trans. of [Radiotekhnika] (USSR) 1955, v. 10, no. 1, p. 23-26.

Various methods are developed for computing the permeabilities of artificial dielectrics. The possibility of creating such media with indices of refraction which are smaller than that of free space is pointed out.

Osipov, K. A.
CALCULATION OF THE LIMITING VALUES OF THE ACTIVATION ENERGY FOR DIFFERENT PROCESSES IN SOLID METALS. [1958] [5]p. 7 refs.
Order from LC or SLA mi$1.80, ph$1.80 AEC-tr-3517

Trans. of A[kademiya] N[auk SSSR]. D[oklady] 1958, v. 121, p. 637-639.

Values of q, the activation energy for the generation of a site of incipient thermodynamic instability in a crystal, referred to one activated atom, were calculated to facilitate a testing of the hypothesis that the activated state for the processes of self-diffusion, recovery and recrystallization, plastic deformation, etc. is virtually the same. (See also 59-10521)

Pardon, L.
MICROSCOPICAL INVESTIGATION OF THE CRYSTALLIZATION OF BLAST FURNACE SLAG. [1959].
Order from BISI £1.10s BISITS-1289

Trans. of Silikaty (Czechoslovakia) 1958, v. 2, p. 176-181.

Parfyanovich, I. A.
INTERACTION BETWEEN ELECTRONS AND THE ACTIVATOR IN NaCl-Ni AND NaCl-Cu PHOSPHORS. [1959] 7p. 19 refs. T-3026.
Order from LC or SLA mi$1.80, ph$1.80 59-15990

Trans. of Optika i Spektroskopiya (USSR) 1958, v. 4, no. 5, p. 692-695.

Results of the investigation of the interaction between electrons and the activator in electrochemically activated NaCl-Ni and NaCl-Cu phosphors are described. The phosphors were excited by X-rays (50 kv, 18 ma) at room temperature. The activator band at λ_m = 225 mμ becomes weaker during the optical ionization of F-centers in the NaCl-Cu. This indicates that the luminescent centers trap electrons when alkali halide phosphors are excited. It can be assumed that new acceptor levels are formed in the activated crystals owing to the combination of activator ions and structural defects similarly to the way structural defects form different acceptor levels of electrons in pure crystals. This formation leads to the formation of a system of bands of additional absorption.

Schram, A.
THE STRUCTURE OF POLYETHYELNE. [1959] 7p. (10 figs. omitted).
Order from SLA mi$1.80, ph$1.80 59-15927

Trans. of Kolloid Zeitschrift (West Germany) 1957, v. 151 [no. 1] p. 18-[24].

Segalova, E. E., Solov'yeva, E. S. and Rebinder, P. A.
DEVELOPMENT OF CRYSTALLIZATION STRUCTURES IN TRICALCIUM ALUMINATE SUSPENSIONS. [1959] 7p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-14305

Trans. of Akademiya Nauk SSSR. Doklady, 1957, v. 113, no. 1, p. 134-137.

Theoretical Physics

Gel'fand, I. M. and Yaglom, A. M.
INTEGRATION IN FUNCTIONAL SPACES AND ITS APPLICATIONS IN QUANTUM PHYSICS, tr. by A. A. Maradudin. Rept. on Contract AF 18(600)1315. May 59 [65]p. 55 refs. Technical note BN-171; AFOSR-TN-59-552; AD-216 692.
Order from LC or SLA mi$3.90, ph$10.80 59-18264

Trans. of Uspekhi Matematicheskikh Nauk (USSR) 1956, v. 11, Jan/Feb, p. 77ff.

The utilization of measure theory and integration in functional spaces in quantum physics is considered. At the same time certain mathematical questions connected with these applications are examined.

Ginzburg, V. L.
THE USE OF ARTIFICIAL EARTH SATELLITES FOR THE PURPOSE OF PROVING GENERAL RELATIVITY THEORY. [1959] 6p. 9 refs.
Order from LC or SLA mi$1.80, ph$1.80 59-16770

Trans. of unidentified Russian article.

A short resume is presented of a longer article (Uspekhi Fiz. Nauk 59: 11, 1956) giving the status of the problem of experimentally proving the general relativity theory. (See also 59-11550, 59-12458, 59-12735, 59-21049)

Lebedyev, S. V.
PHENOMENA IN TUNGSTEN WIRES PRECEDING THEIR EXPLOSION UNDER THE EFFECTS OF A HEAVY CURRENT (Yavleniye v Vol'framovykh Provolokakh, Predshestvuyushchiye ikh Vzryvu pod Deystviyem Sil'nogo Toka) tr. by Marcel I. Weinreich. 27 Mar 59, 21p. (5 figs. 5 formulae omitted).
Order from LC or SLA mi$2.70, ph$4.80 SCL-T-239

Trans. of Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki (USSR) 1954, v. 27, no. 5, p. 605-614.

This study examines the character of the changes which occur in tungsten while it is heated by a current of a greater density. At a current density of j virtually equal to 5×10^5 amp/sq cm, anomalies are observed in the state of tungsten, which were previously exposed when j is approximately greater than 5×10^6 amp/sq cm. During an abrupt cut-off of the current 5×10^5 amp/sq cm it was noted that the tungsten does not become liquefied, although its energy corresponds to the energy of the liquid state. The symptoms of the anomalous emission are observed simultaneously with the symptoms of the anomalous dependence of the resistance of the energy.

Podlubnyy, L. I.
ON MULTIPLE INTERACTION IN QUANTUM FIELD THEORY. 15 Jan 59, 3p. 4 refs. TP-26.
Order from LC or SLA mi$1.80, ph$1.80 59-16748

Trans. of *Z[hurnal] E[ksperimental'noy i] T[eoreticheskoy] F[iziki] (USSR) 1958, v. 35, no. 4(10) p. 1044-1045.

An expression for the effective potential of multiple interaction of two particles is obtained in closed form. The analysis is carried out on the basis of the usual Feynman-Dyson method under the approximation $||E| - m| \ll m$, when it is possible to be limited to the first term $|E_n| \approx m$ in the expansion for the free particle (electron, say) energy $|E_n| = m + p_n^2/2m + \ldots$

Thermodynamics

Kalafati, D. D.
THE REGION OF WATER AND FUSION OF ICE IN THE s-T DIAGRAM. [1959] 12p. 10 refs.
Order from CCT $47.25 CCT-294-TT

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1954, v. 24, no. 2, [p. 184-192].

The isobars of water in the s-T diagram were drawn and analyzed over the 100° to -30° range after the regions of vapor formation and fusion of ice were simultaneously examined. The heat capacity and the compressibility of water were based on published experimental data of G. A. Tamman (Zhur. Russ. Fiz. Khim. Obshchestva 34: 67-153, 1902; and Z. Org. Allgem. Chem. 174: 225, 1928) and N. E. Dorsey (Properties of ordinary water substance, Reinhold Publishing Corp., N. Y., 1940).

Krayev, O. A.
MEASUREMENT OF METAL HEAT CONDUCTIVITY IN A WIDE RANGE OF TEMPERATURE DURING A SINGLE EXPERIMENT (Izmereniye Temperaturoprovodnosti Metallov v Shirokom Intervale Temperatur za Odin Opyt) tr. by Marcel I. Weinreich. [1959] [15]p. 3 refs.
Order from LC or SLA mi$2.40, ph$3.30 SCL-T-220

Trans. of Teploenergetika (USSR) 1957, v. 4, no. 12, p. 69-72.

A new method of measuring the dependence of metallic heat conductivity of temperature during a single experiment is proposed. A theoretical foundation of this method is given, the experimental setup is described and the results of measuring the thermal conductivities of various metals are listed.

Levin, M. L.
ON THE ELECTRODYNAMIC THEORY OF THERMAL RADIATION. [1959] [6]p. 3 refs. AF-22.
Order from LC or SLA mi$1.80, ph$1.80 59-16719

Trans. of [Akademiya Nauk SSSR. Doklady] 1955, v. 102, no. 1, p. 53-56.

The paper of S. M. Rytov (Theory of electric fluctuations and thermal radiation, Moscow, 1953) gave the general macroscopic theory of thermal electric fluctuations; the basis of this theory is the introduction of a chaotic extraneous electric field K which is the source of the magnetic field. Rytov found the latter by the general methods of solving inhomogeneous boundary problems of phenomenological electrodynamics. Here we shall show that finding the fluctuation field of the radiating body reduces the quadratures if the solution of the corresponding diffraction problem is known from this body.

Vagin, Ye. V. and Zhukhovshiy, A. A.
THEORY OF THERMAL SEPARATION OF GAS MIXTURES BY THE ADSORPTION METHOD.
3 Aug 59, 7p. 4 refs. JPRS: L-885-N.
Order from OTS $0.50 59-13758

Trans. from Akademiya Nauk SSSR. Doklady, 1954, v. 94, no. 2, p. 273-276.

This communication formulates the theory of thermal separation and cites data of the experimental verification of this theory.

Wave Propagation

Anisimov, E. V. and Sovetov, N. M.
PROPAGATION OF ELECTROMAGNETIC WAVES ALONG A RIBBON HELIX LOCATED INSIDE A ROUND WAVEGUIDE. [1959] [9]p. 5 refs. AF-8.
Order from LC or SLA mi$1.80, ph$1.80 59-16706

Trans. from [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 11.

An examination is presented of the theory of the propagation of electromagnetic waves along a system consisting of an ideally conducting helix which is located inside a round waveguide. The problem is solved for a ribbon helix with a finite pitch, a finite ribbon width and a very small thickness. The electromagnetic wave is composed on a series of components at certain frequencies; these components correspond to a certain number of possible types of oscillations in the helix. The results can be extended to apply to cases which involve more complex helical systems.

Feld, Ya.
A BOUNDARY PROBLEM OF ELECTRODYNAMICS AND INTEGRAL EQUATIONS OF CERTAIN DIFFRACTION PROBLEMS. [1959] [15]p. 6 refs. AF-6.
Order from LC or SLA mi$2.40, ph$3.30 59-16704

Trans. of [Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki] (USSR) 1944, v. 14, no. 9, p. 330-341.

The full solution is presented of the first boundary value problem of electrodynamics for harmonic oscillations. The results which are obtained are used to reduce a number of problems in electromagnetic diffraction to the solution of Fredholm integral equations of the first kind.

Gershman, B. N.
ON PROPAGATION OF ELECTROMAGNETIC WAVES IN A PLASMA LOCATED IN A MAGNETIC FIELD, THE THERMAL MOTION OF ELECTRONS BEING TAKEN INTO ACCOUNT. [1959] 20p. 7 refs.
Order from LC or SLA mi$2.40, ph$3.30 AEC-tr-3627

Trans. of Zh[urnal] Eksp[erimental'noy i] Teor[eticheskoy] Fiz[iki] 1953, v. 24, p. 659-672.

The author considers the propagation of different types of electromagnetic waves in a homogeneous plasma located in a constant magnetic field taking into account the thermal motion of electrons. Principal attention is allotted to the analysis of the behavior of a plasma wave.

Vaynshteyn, L. A.
THE DIFFRACTION OF ELECTROMAGNETIC WAVES BY A GRID WHICH CONSISTS OF PARALLEL CONDUCTING STRIPS. [1959] [7]p. 4 refs. AF-34.
Order from LC or SLA mi$1.80, ph$1.80 59-16694

Trans. of [Zhurnal Tekhnicheskoy Fiziki] (USSR) 1955, v. 25, no. 5, p. 847-852.

The rigorous solution of the problem concerning the diffraction of a plane electromagnetic wave by a grid which is formed by parallel conducting ribbons (strips) is examined under conditions where the wave is normally incident upon the grid and where the width of the ribbons is equal to the width of the slots between them. Graphs are given which characterize the reflection and passage of waves by the grid for various values of the parameter $q = d/\lambda$, where d is the width of the ribbon, and λ is the wavelength as well as graphs for the amplitudes of the diffraction spectra.

Volpert, A. R. and Potekhin, A. I.
THE DIFFRACTION FIELD OF AN IDEALLY CONDUCTING SPHERE. [1959] [9]p. 5 refs. AF-36.
Order from LC or SLA mi$1.80, ph$1.80 59-16696

Trans. of [Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki] (USSR) 1947, v. 17, no. 9, p. 802-813.

An examination is presented of the results of computing the magnitude of the diffraction field produced on an ideally conducting sphere as a function of the radius of the sphere.

RESEARCH METHODS, TECHNIQUES AND EQUIPMENT

ACADEMY OF SCIENCES USSR: REVIEW OF 1957 ACTIVITIES. 10 Mar 59 [83]p. JPRS: 1273-N.
Order from OTS $2.25 59-13222

Trans. of Akademiya Nauk SSSR. Vestnik, 1958 [v. 28] no. 5, p. 4-31 and 48-66.

Contents:
Introductory Speech, by A. N. Nesmeyanov, president of the Academy of Sciences
Basic Results of Scientific Activity of Academy of Sciences USSR for 1957, by A. V. Topchiyev, Chief Scientific Secretary of the Presidium of the Academy of Sciences
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AKADEMIYA NAUK URSR, KIEV. DOPOVIDI, 1959, NO. 3, P. 227-344 (Reports of the Academy of Sciences UKR SSR). [1959] 1v. SOV-21-59-3-(1-27)/27.
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Foreign $0.85, $5.00/6 mo.

Consists of abstracts in English.

CREATION OF A (LARGE) SCIENTIFIC CENTER IN SIBERIA (Sozdaniye Krupnogo Nauchnogo Tsentra v Sibiri). 26 Sep 58 [11]p. AF 1187187.
Order from LC or SLA mi$2.40, ph$3.30 59-14908

Trans. of Akademiya Nauk SSSR. Vestnik, 1957 [v. 27] no. 12, p. 8-14.

*IZMERITEL'NAYA TEKHNIKA (USSR) 1958, NO. 5, P. 3-96 (Measurement Techniques). [1959] 1v. SOV-115-58-5-(1-36)/36.
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Consists of abstracts in English.

MACHINE TRANSLATION [AND] INFORMATION MACHINES. [1959] 2p.
Order from LC or SLA mi$1.80 59-16343

Trans. of Voprosy Yazkoznaniya (USSR) 1958 [v. 7] no. 2, p. 166 and Znaniye-Sila (USSR) 1958, Mar, p. 9.

THE SIBERIAN BRANCH OF THE USSR ACADEMY OF SCIENCES. 29 Apr 58 [5]p. 3 refs. AF 1177342.
Order from LC or SLA mi$1.80, ph$1.80 59-16959

Trans. from Soviet open sources (newspapers) 1957-1958.

SOVIET SCIENCE IN THE BUILDING OF COMMUNIST SOCIETY. 31 July 59, 3p. JPRS: L-1806-D.
Order from OTS $0.50 59-11736

Trans. of Mikrobiologichnyy Zhurnal (USSR) 1959, v. 21, no. 1, p. 3-4.

This paper consists of generalities on the Seven Year Plan.

SOVIET SCIENTISTS: BIOGRAPHIC INFORMATION 1 May 59, 35p. (3 photos omitted). JPRS: L-1648-D.
Order from OTS $1.00 59-11541

Trans. of selected articles from Russian literature.

Contents:
Vladimir Dmitriyevich Kuznetsov Corresponding Member of the Academy of Science USSR (70th birthday)
Professor Yakov Solomonovich Temkin (60th birthday)
Professor Amayak Avakovich Arutyunov (60th birthday and 30th anniversary of scientific-pedagogical and social activities)
Professor Iosif Naumovich Shapiro (70th birthday)
General designer -- A. S. Yakovlev
Filipp Vasil'yevich Shevanov (60th birthday and 35th anniversary of his scientific-pedagogical and social activities)
V. G. Butomo (60th birthday)
M. A. Petrov-Maslakov (60th birthday)
S. A. Yagunov (forty years of medical, scientific and social activities)
V. I. Popkov, Corresponding Member of the Academy of Sciences of the USSR on his 50th birthday and 25th anniversary of scientific activities
Seventieth birthday of Professor V. F. Popov

Chesnokov, E. N.
PHILOSOPHIC PROBLEMS OF MODERN NATURAL SCIENCE (Filosofskiye Voprosy Sovremennogo Yestestvoznaniya). [1959] 16p. 1 ref. Trans. A-1021.
Order from LC or SLA mi$2.40, ph$3.30 59-16816

Trans. of Akad[emiya] Nauk SSSR. Vestnik, 1959, v. 29, no. 1, p. 132-138.

Grunt, A. Ye. and others.
THE SCIENTIFIC ACTIVITY OF MOSCOW UNIVERSITY IN THE FIELDS OF PHYSICS, CHEMISTRY, GEOLOGY, AND GEOGRAPHY DURING THE POSTWAR PERIOD. 30 Mar 59, 46p. JPRS: L-729-N.
Order from OTS $1.25 59-13380

Trans. of mono. Istoriya Moskovskogo Universiteta (History of Moscow University) Moscow, 1955, v. 2, p. 353-385.

Meinke, H.
SYMBOLS OF THE SCIENCE OF ELECTRICAL COMMUNICATIONS (Formelzeichen der Elektrischen Nachrichtentechnik). [1958] 16p. F-TS-9514/V.
Order from LC or SLA mi$2.40, ph$3.30 59-12159

Trans. of NTZ; Nachrichtentechnische Zeitschrift (West Germany) 1956 [v. 9] no. 1, p. 39-42.

SOCIAL SCIENCES

THE FULFILLMENT OF RESOLUTIONS OF THE CONGRESS [NO. 21] OF THE CPSU -- OUR TASK.
26 June 59, 3p. 1 ref. JPRS: L-826-N.
Order from OTS $0.50 59-13632

Trans. of Sovetskoye Zdravookhraneniye (USSR) 1959, [v. 18] no. 2, p. 3-4.

Nesmeyanov, A.
THE GOALS OF SOVIET SCIENCE IN THE LIGHT OF THE SEVEN YEAR PLAN FOR THE DEVELOPMENT OF THE NATIONAL ECONOMY OF THE USSR (Zadachi Sovetskoy Nauki v Svete Semiletnego Plana Razvitiya Narodnogo Khozyaystva SSSR).
10 Dec 58 [11]p. 1 ref. AF1187413.
Order from LC or SLA mi$2.40, ph$3.30 59-16960

Trans. from Pravda [Moscow] (USSR) 1958, 1 Dec, p. 2-3.

Romanov, B. G. and Kashmanov, V. N.
NEW PAY REGULATION FOR DRIVERS (Novoyye Polozheniye ob Oplate Truda Shoferov) tr. by S. E. [1959] 7p. H-3557 B.
Order from LC or SLA mi$1.80, ph$1.80 59-16645

Trans. of Za Rulem (USSR) 1959 [v. 17] no. 1, p. 19-20.

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